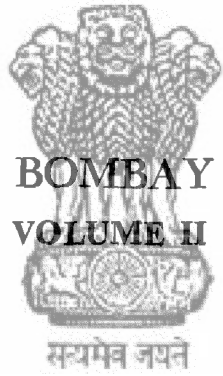
GREATER BOMBAY GAZETTEER

MAHARASHTRA STATE GAZETTEERS

सत्यमेव जयते

Government of Maharashtra



GREATER BOMBAY DISTRICT

VOLUME II

सत्यमेव जयते

EDITOR

K. K. CHAUDHARI, M.A.

BOMBAY

GAZETTEERS DEPARTMENT, GOVERNMENT OF MAHARASHTRA

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GREATER BOMBAY DISTRICT

VOL. II

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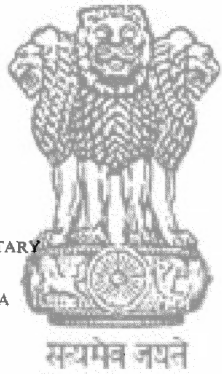

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CONTENTS

PREFACE

It is with great delight that I am presenting this second volume of the veritable cyclopaedic *Greater Bombay District Gazetteer,* which is being brought out in three volumes in the revised edition of Gazetteers. It is a monumental work, contain as it does the most authentic and exhaustive narration of the Economy of Bombay in a historical perspective. It can verily be said that the major portion in the present volume has the impress of profound scholarship. I can also say that the scholarly narration of the history of industrial growth and economic development of Bombay furnished in this Volume is a valuable contribution to learning. Bombay has been a subject of interest of many research scholars from India and abroad. But hardly anyone of them has published any work on the industrial development at the micro-economic level. This volume has, probably, filled up this gap in the knowledge on Bombay by furnishing the history of industrial growth over a period of nearly 300 years.

Undoubtedly, Bombay is the commercial capital of India. More than 40 per cent of India's maritime trade passes through the Bombay Harbour. This city owed its initial development as a centre of trade partially to its quality as a natural harbour, and partially to the men of great enterprise. The mid-nineteenth century was a period of rapid economic advance. By this time, British sovereignty had been imposed on large areas of Western India, and communications by road and sea had greatly improved. The merchants of Bombay made great fortunes from the exports of cotton and opium. The railway heralded a new industrial age with the opening of the rail line from Bombay

to Thane in 1853. The extension of railways up the Ghats, only ten years later, added to the growth potential of the city. More significant than this, the businessmen of Bombay began to turn from trade to manufacture and lay the foundations of the textile industry that made Bombay the Manchester of the East and one of the cotton capitals of the world. But most significant of all, the fortunes of Bombay were revolutionised by the Cotton Boom or Share Mania caused by the American Civil War of 1861–65. Enormous profits earned during the boom were invested in cotton mills, banking, reclamation and embellishment of the city. These forces gave birth to 'Modern' Bombay as a 'World City'.

The first factory in Bombay, the mint of the East India Company, opened in 1676, while the first cotton textile mill was opened in 1854. Others followed soon afterwards, encouraged by the industry's early success; and in 1875 there were 27 mills. Expansion continued until the turn of the century. The Bombay Port Trust was started in 1873, while the Bombay Chamber of Commerce, established in 1836, gave impetus to the growth of industry and commerce. The Chapter on "Industries" in this revised Volume throws a searchlight on the History of Industrial Development during a period of 300 years. This is by itself an unparalleled work. The Sassoons, Petits, Khataus, Morarji Goculdas, Wadias, Tata, Currimboy, Godrej and Thackersey families emerged as enterprising promoters. In the course of time Bombay's cotton business exceeded that even in Liverpool. Bombay developed as a manufacturing city like London, Manchester, Bradford, Liverpool, Birmingham, Leeds, Halifax and Southampton. London and Manchester were the models for Bombay. But today the chimneys of London and Manchester are going or have already gone, and many mills stand empty and destroyed. Bombay, however, continues and continues to grow organically. The mills and factories in Bombay work on round the clock.

Multitudes from India's heartlands come here for seeking employment, money and life itself. To them all, it is a city of gold. But truthfully, prosperity and squalor seem to increase in direct proportion to one another in this city.

The above paragraphs would give a fairly clear idea about the contents of the present volume. The subjects dealt with in this volume were included in Volume I, Volume II and Volume III of the *Gazetteer of Bombay City and Island* (1909–1910) edited by Mr. S. M. Edwardes, and the *Thana District Gazetteer* of 1882, edited by Mr. James M. Campbell. The present revised volume follows an entirely different scheme of treatment and emphasis, which is probably more systematic and objective than the above corresponding old Gazetteers. Mr. Edwardes' *Gazetteer of Bombay City and Island* dealt with these subjects under such headings as, The Harbour, Capital, Communications and Trade (Volume I), Land Administration, Revenue and Finance (Volume II), and Markets, City Improvement Trust, etc. (Volume III). All these subjects and many more have been presented, in this revised edition, under appropriate chapter headings. The information regarding South Salsette, which now constitutes Bombay Suburbs, has been culled from the *Thana District Gazetteer* of Mr. Campbell. The present Volume contains six chapters, *viz.*, 4 to 9. The chapter headings are given on the pattern prescribed by the Government of India. There are, however, immense and far-reaching deviations from the Central Pattern, both as regards the comprehensiveness and depth of treatment given to each subject. The deviations are inevitable due to the importance of Bombay as the industrial nerve centre and the commercial capital of India. The *Gazetteer of Bombay* has to be worthy of this Great City. It has, therefore, been incumbent upon us to deviate from the scheme of the Government of India which envisaged publication of each District Gazetteer in a single volume.

I must avail myself of this opportunity to state that a good deal of information pertaining to some of the subjects in this volume has been furnished more at length in Volume I of this revised Gazetteer. A comprehensive history of the industrialists and businessmen, and their role in the nationalist movement as well as in the making of this city has been given in History--Modern Period in Volume I. The readers would certainly be benefited by referring to Volume I.

Enormous efforts, involving laborious and time-consuming processes from the commencement to completion, were needed for the production of this work which has necessarily to maintain a high standard of precision, reliability, objectivity and thoroughness. We have perseveringly strived for achieving such a standard, although we are aware of our shortcomings. No effort has been spared to incorporate as up-to-date information as possible. However, in a monumental work like this a time-lag between the date of collection of information and its publication is inevitable.

The first draft of some chapters was prepared during the tenure of my painstaking predecessor, Dr. B. G. Kunte. I owe my sincere thanks to him. That write-up has been thoroughly revised, voluminous additions have been made and two chapters were newly written. Naturally this was a stupendous task.

I owe a great debt of gratitude to the scholar contributors of the present volume, namely, Dr. B. R. Rairikar and Shri K. K. Chaudhari (myself). This monumental work on Bombay would not have been possible but for their contributions.

I also owe my thanks to the members of the former Maharashtra District Gazetteers Editorial Board for scrutiny

of the first draft of some portion in this volume. These members comprised the following distinguished men:—

(1) Additional Chief Secretary to the Government of Maharashtra (Chairman).
(2) Shri P. Setu Madhav Rao.
(3) Dr. V. B. Kolte.
(4) Dr. C. D. Deshpande.
(5) Dr. B. R. Rairikar.
(6) Dr. (Smt.) Sarojini Babar.
(7) Dr. V. T. Gune.
(8) Dr. P. N. Chopra.
(9) Executive Editor and Secretary (Dr. B. G. Kunte).

The present members of the Editorial Board, reconstituted while the volume was under printing, have very kindly encouraged me in this work. To all these men of distinction, mentioned below, I am highly indebted:—

(1) Additional Chief Secretary to the Government of Maharashtra (Chairman).
(2) Shri P. Setu Madhav Rao.
(3) Dr. C. D. Deshpande.
(4) Dr. U. M. Pathan.
(5) Shri D. B. Karnik.
(6) Prof. Y. S. Mahajan.
(7) Dr. B. L. Bhole.
(8) Shri S. G. Suradkar.
(9) Dr. A. P. Jamkhedkar.
(10) Dr. P. N. Chopra.
(11) Executive Editor and Secretary.

I shall be failing in my duty if I do not express my gratitude to Dr. P. N. Chopra, former Editor, Gazetteers Unit, Ministry of Education, Government of India, New Delhi, who has always been my friend, for his prized advice and scrutiny of a part of the write-up. The Government of India have kindly paid an *ad hoc* grant for the compilation and printing of the *Greater Bombay Gazetteer*.

Several Government Offices, particularly the Director of Economics and Statistics, and the Centre for Monitoring

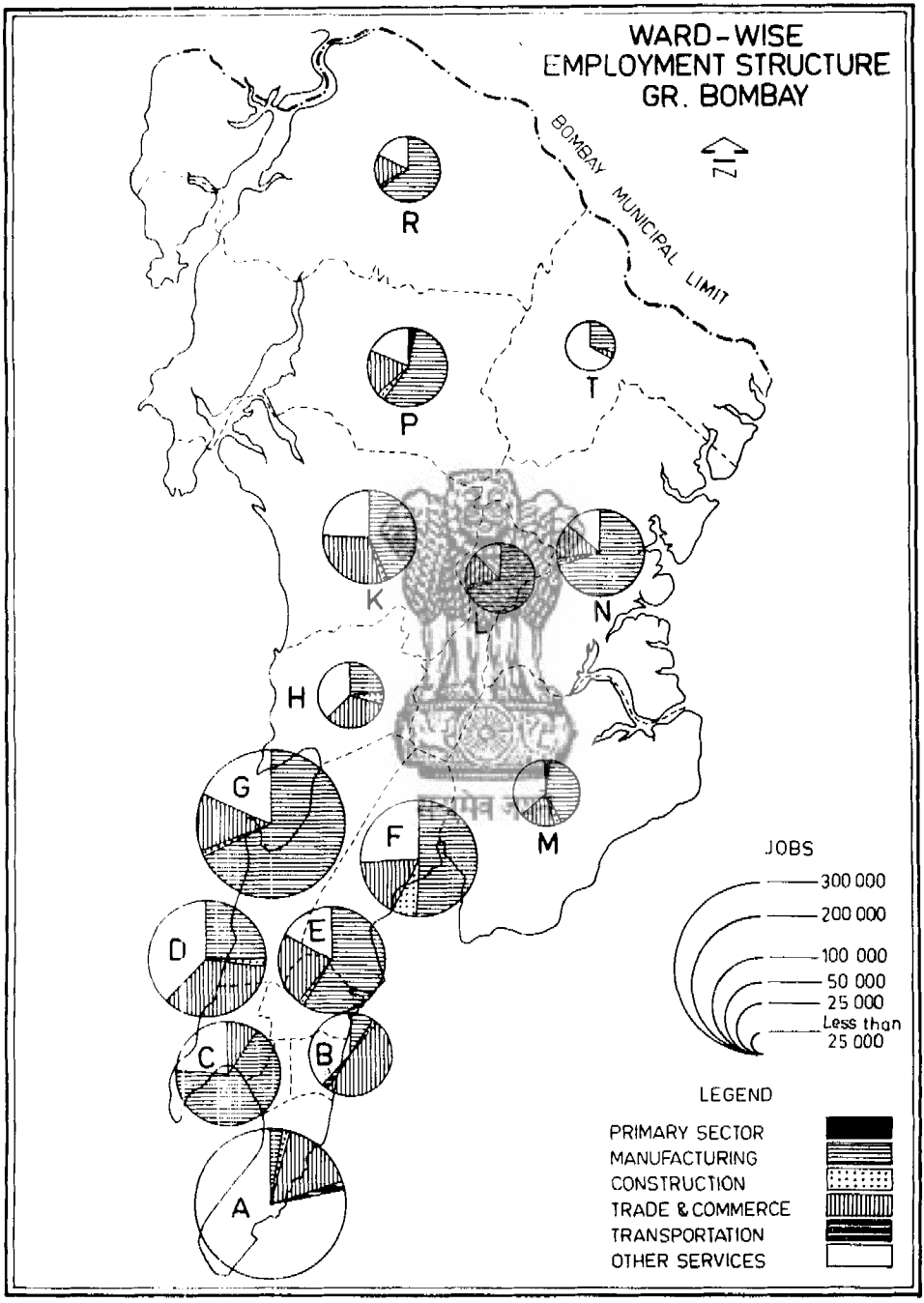
Indian Economy, the Bombay Municipal Corporation, various Government Undertakings, the Librarians of the University of Bombay Library, the Vidhan Bhavan Library and many other libraries, the Bombay Chamber of Commerce, the Indian Merchants' Chamber, the Maharashtra Chamber of Commerce and all other Chambers of Commerce, as well as the Bombay Millowners' Association and the Associations of various industries and trade, and numerous other organisations, and scores of enlightened citizens of Bombay, have readily and unhesitatingly helped me in this work. To all of them, whose names cannot be mentioned here, my thanks are due. I must also thank Dr. A. P. Jamkhedkar, Director of Archaeology, Maharashtra State, for providing photographs for the volume.

I am thankful to Shri R. B. Alva, Director of Government Printing and Stationery; Shri G. D. Dhond, Deputy Director; Shri P. S. More, Manager; and Shri A. C. Sayyad, Deputy Manager and Shri A. K. Rao, Assistant Manager, Government Central Press, Bombay, as also other officers, not only for the fine printing of this volume but also for patiently bearing with us while we made many additions to the matter even at the proof stage. My thanks are also due to Dr. V. N. Gurav, Deputy Editor, Sarvashri M. H. Ranade (Retd.), S. K. Khilare, P. N. Narkhede, B. M. Kausal (Research Officers) and Smt. M. S. Modikhane (Research Officer then), for their assistance in the work. I am also thankful to Smt. N. S. Alwani, Sarvashri N. R. Patil, K. Z. Raut, D. J. Nawadkar, V. B. Sangrulkar, R. R. Hanwatkar, and V. J. Desai (Assistant Research Officers) for their assistance in the publication of this volume. I must also thank Shri P. S. Khobrekar, Administrative Officer and other members of the staff for their association with this work.

I hope this cyclopaedic Volume will be appreciated and found highly useful by all those historians, scholars and administrators who are interested not merely in the study of the Economy and History of this colourful Great City of India, but also desiring to study the biography of Bombay.

BOMBAY:
1 January 1987

K. K. CHAUDHARI
Executive Editor and Secretary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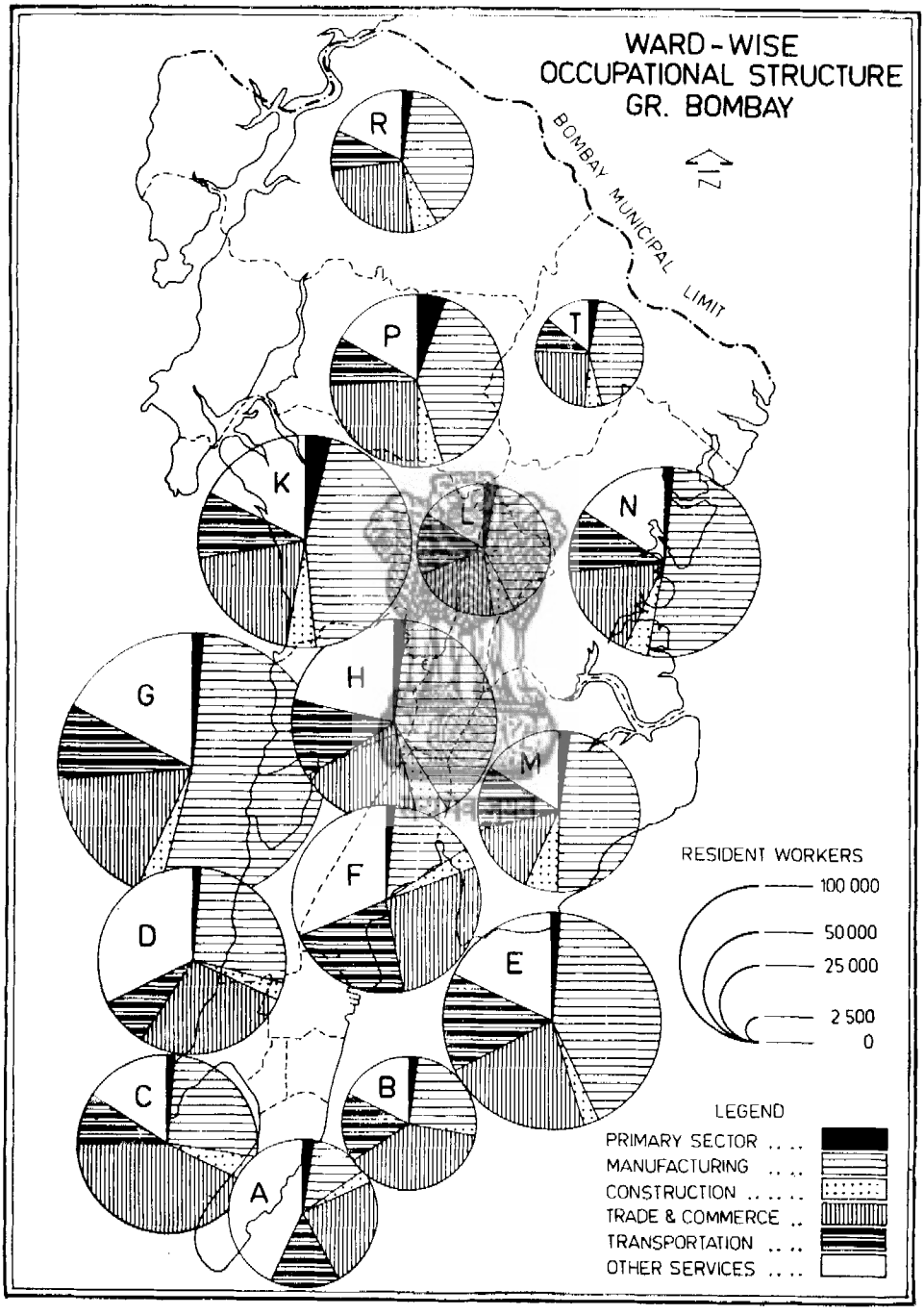
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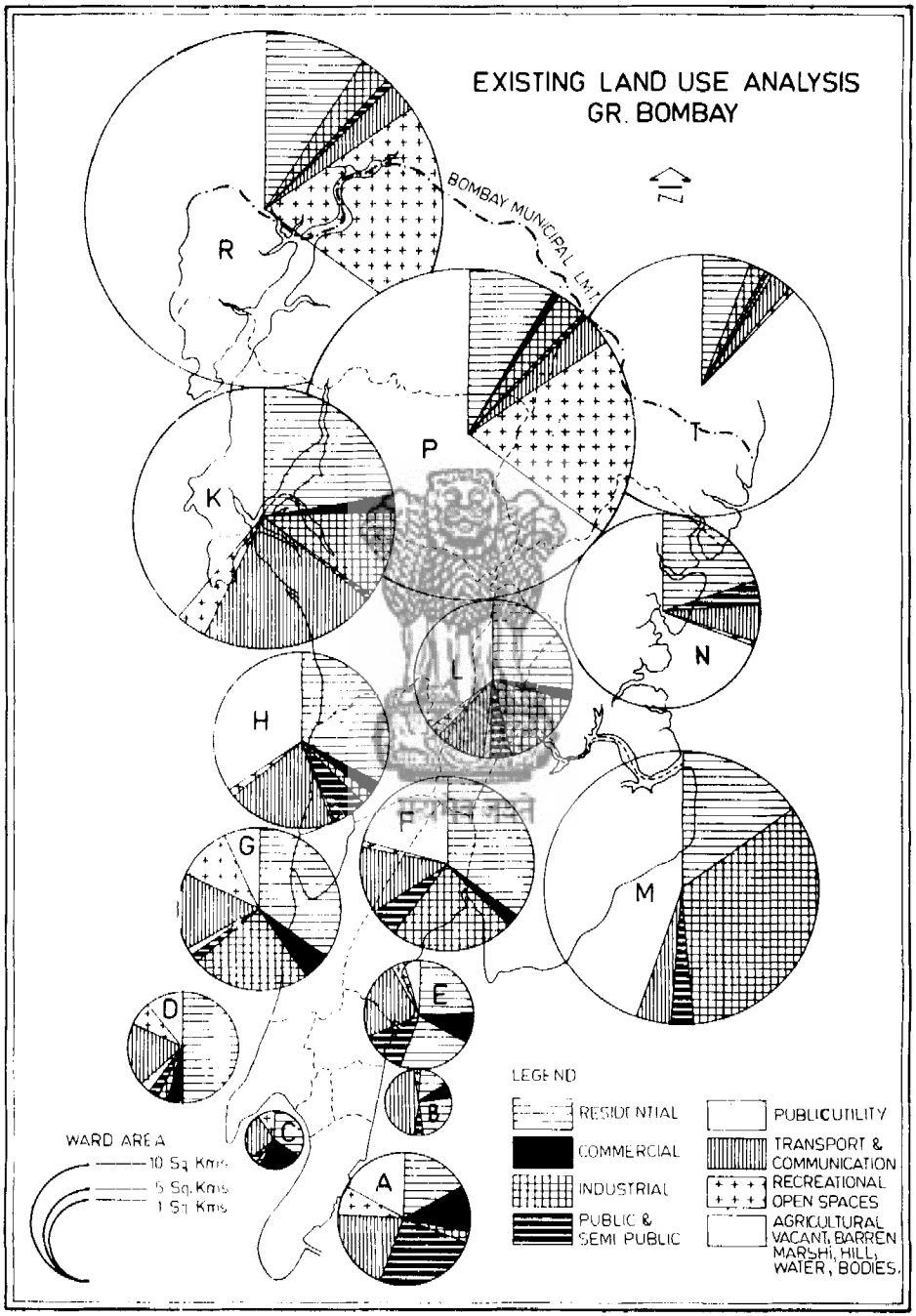
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GREATER BOMBAY

CHAPTER 4—AGRICULTURE AND IRRIGATION

INTRODUCTION

BOMBAY THE HEPTANESIA OF THE GREEK COSMOGRAPHER, PTOLEMY, is now a bustling city, the commercial capital of India and the most industrialised city in the sub-continent. However, the Bombay Island and parts of the Salsette presently in Bombay had many rural characteristics in the period upto the beginning of the nineteenth century. There was a good amount of agricultural cultivation in the South Salsette now christened Bombay Suburban District, even upto the dawn of the present century. Cocoanuts, rice, mangoes and other fruits and vegetables were cultivated in the Bombay Island and in the Bombay Suburban District. When the Island came under the British (1665) and was then leased to the East India Company (1668), the Company encouraged agricultural cultivation. The extension of cultivated area at any rate was one of the objectives of the local officials of the East India Company. In 1679 they urged upon the Council at Surat the necessity of improving a considerable quantity of ground on each side of the Company's garden. They also demanded that the uncultivated area should be surveyed, drained and rendered fit for agriculture. By the close of the seventeenth century a certain amount of progress was discernible. People had been encouraged to settle and cultivate the soil. The mangoes of Bombay, which had been very carefully nurtured by the Portuguese, maintained their standard of excellence.

At the dawn of the eighteenth century a good amount of land which was formerly under inundation, was brought under cultivation. By 1725 the number of palms in the island was estimated at 1,10,000.

Mr. Grose stated in 1750 that the bulk of the proprietors and cultivators in Bombay were Roman Catholic Mestizos and Canarins. He further wrote that agricultural land was chiefly employed in cocoanut groves or oarts, rice fields and onion grounds.

During the early years of the nineteenth century the expansion of the town commenced to set a limit upon the progress of cultivation. Mr. Heber found in 1838 that the area of rice land was still considerable, but it

gradually dwindled between 1835 and 1850 from 1,67,435 *burgas* to 1,65,000 *burgas* (a *burga*=60 square yards). Garden cultivation still maintained its popularity. Brinjals and other vegetables were grown in plenty. The economic advancement of the town, however, eventually curtailed the area of garden land, much of which was absorbed during the latter half of the nineteenth century by railways, roads and buildings.

Rice was the staple crop of the island, while cocoanut plantation was rampant between Sion and Mahim on the east of the railway, and also in Dadar, Mahim and Worli at the dawn of the twentieth century. However, the mammoth growth of factories, trade and commerce and the consequent urbanization encroached upon agriculture at a faster rate. The encroachment continues to this day. Still many patches of agricultural land have survived the ravages of urbanization, and hence, a narration of agricultural cultivation and allied matters is given in this chapter.

Since land reclamation has some bearing on agriculture in this island, a very brief account of the same is given below, while details are given in Chapter 1 of this *Gazetteer* (Vol. I). The account of tenancy and tenures in this chapter, although it no longer holds good, is furnished as a matter of historical interest.

Although the chapter bears the heading "Agriculture and Irrigation" as per the pattern of contents in all *Gazetteers*, no account of irrigation is given below because there is not much of "irrigation" as we understand it today.

LAND RECLAMATION

The physical history of Bombay is a story of land reclamation. The idea of reclaiming submerged grounds dated from a very early period. In the middle of the sixteenth century the Portuguese authorities had advised their king to substitute for the grant of villages to deserving individuals the allotment of submerged lands in perpetuity to those who drained and reclaimed them. After taking possession of the Bombay Island by the British, the Court of Directors of the East India Company ordered their representatives in Bombay to encourage the stoppage of breaches where the sea over-flowed the island. The reclaimed land was granted, free of rent but reserving a small quit-rent for the Company, to individuals. Nevertheless, with the exception of small patches of reclamation here and there, no serious attempt was made for about a century after Bombay came under the British. The first work of great magnitude in this direction was the construction of the Vellard between Mahalaxmi and Worli during the Governorship of William Hornby (1771–84). It is noteworthy that some efforts were made to build the Vellard earlier in the century. But the work could not withstand the ravages of the sea waves. William Hornby appreciated the importance of stopping the flow of sea water from

the Great Breach (Breach Candy) upto Mazagaon in the east and upto the Mahim Creek in the north. He framed a proposal for construction of the causeway, but it was rejected by the Court of Directors on the ground that it was nothing but extravagance. Hornby, however, undertook the scheme in the face of opposition from the Court of Diretcors, while there were only 18 months left till the expiry of his tenure of office. The causeway was completed in 1805 and was later named after him as Hornby Vellard. It is now known as Lala Lajpatrai Road.

No sooner was the Vellard completed than the central portions of the island and the Flats became available for the reclamation which was gradually carried out during the nineteenth century. A huge area from Mahalaxmi upto Mazagaon in the east and upto the Mahim Creek in the north was gradually reclaimed. As soon as the Flats were reclaimed, the land was brought under cultivation; rice, cocoanuts and vegetables were grown on considerable areas. The Bellasis Road from west to east then passed through rice fields on both sides.

The economic boom incidental to the Share Mania (1861–65) which was by itself due to the American Civil War of 1861-65 initiated a series of reclamations. The prosperity and money born of the boom were harnessed to the cause of land reclamation. While a large portion of the reclaimed land was utilised for urban planning and development, a good amount of land was brought under cultivation.

There are many localities in the city which bear the names such as Kele Wadi, Tad Wadi, Phanas Wadi, Ambe Wadi, Naral Wadi, Kande Wadi, which were once garden lands growing fruits and vegetables. The area formerly known as Mahim Woods was a congenial home for garden lands which grew cocoanuts, mangoes, many other fruits and vegetables as well as paddy.

The mangoes of Mazagaon were very famous in the seventeenth and eighteenth centuries. Thomas Cooke's *Lullah Rookh* speaks highly about them. The Mazagaon mangoes were relished in the dining hall of Emperor Shah Jahan. They were harvested twice a year, once in May and then during December. Even at the dawn of the twentieth century two mango trees of the same rich variety of the seventeenth and eighteenth centuries were found to be existing in a garden around a private bungalow at Mazagaon.[1]

LAND USE

Before analysing the existing pattern of land use in Greater Bombay with particular reference to agricultural activity, it is necessary to give the history of formation of the present Greater Bombay District.

[1] Gillian Tindall, *City of Gold* (Temple Smith, London, 1982).

Prior to 1920 Bombay comprised only the Island City. In 1920, the Salsette taluka of Thane district was divided into North Salsette and South Salsette. South Salsette taluka consisting of 86 villages was separated from Thane district to constitute the newly created Bombay Suburban District. This district was constituted of two talukas viz., Borivali with 33 villages and Andheri with 53 villages. In 1945, 33 villages from this district were transferred back to Thane district. In 1946, 14 villages of these 33 were returned back to Bombay Suburban District for the development of the Aarey Milk Colony. The municipal limits of Bombay were extended in 1950 to include the Andheri taluka of the Bombay Suburban District as Suburban Bombay. It was on 1st February 1957 that the Borivali taluka together with villages transferred from Thane district was also appended to Bombay when the Municipal Corporation limits were further extended. Thus the present Greater Bombay district comprising the city proper and suburbs came into existence since 1st February 1957.

Upto the end of the nineteenth century a considerable area of Bombay Island and Salsette was under agriculture. With the growth of industrialisation and urbanization land under agriculture dwindled progressively. The following tables Nos. 1 and 2 give the statistics about the land use in Bombay since 1918-19 to 1980-81. It may be noted that the statistics pertain to the area of the city which existed in the respective years:—

TABLE No. 1

CULTIVATED AND UNCULTIVATED AREA IN BOMBAY SUBURBAN DISTRICT

(Area in hectares)

Type of Area	1922-23	1930-31	1940-41	1947-48
(1) No. of villages	81	93	86	39
(2) Total area cultivated and uncultivated	33,487	39,702	36,832	23,166
(3) Area under cultivation—				
Net Cropped	11,486	13,299	11,585	3,881
Fallows	8,626	8,422	7,676	2,878
Total ..	20,112	21,721	19,261	6,759
(4) Uncultivated area—				
Other uncultivated area excluding fallows.	1,597	5,680	6,050	120
Area not available for cultivation ..	11,778	12,301	11,521	16,287
Total—Uncultivated area ..	13,375	17,981	17,571	16,407

Source.—Statistical Atlas of Bombay State, 1925 and 1950.

TABLE No. 2

LAND UTILIZATION IN GREATER BOMBAY FROM 1950-51 TO 1980-81

(Area in '00' hectares)

		1950-51	1960-61	1970-71	1980-81*
1.	Geographical area by village papers	170	380	380	380
2.	Forests	1	14	15	15
3.	Barren and uncultivated land ..	39	45	61	74
4.	Land put to non-agricultural uses	13	95	156	193
5.	Cultivable waste	27	49	6	9
6.	Land under miscellaneous trees, crops and groves.	..	4	..	..
7.	Permanent pastures, grazing groves	..	35	12	6
8.	Current fallows	..	15	8	3
9.	Other fallows	37	36	52	18
10.	Net area sown	53	87	70	62
11.	Area sown more than once ..	3	5	2	7
12.	Gross cropped area	53	91	72	69

* Figures for 1980-81 are provisional.

Source.—Statistical Abstract of Maharashtra State, 1950-51 to 1980-81.

In 1980-81 the net area sown in Bombay was only 16.3 per cent of the total geographical area. Out of the net area sown most of the area was under paddy, fruits and vegetables.

AGRICULTURAL POPULATION

It is seen from the old *Gazetteer of Thana District* (1882) that the agricultural population in Salsette which is now in Greater Bombay included Kolis, Sonkolis, Christians, Kunbis and Agris. The following statement shows the agricultural population in Greater Bombay as per the 1961, 1971 and 1981 censuses:—

Category	1961		1971		1981	
	Males	Females	Males	Females	Males	Females
Cultivators	2,944	1,896	2,292	380	2,777	400
Agricultural labourers ..	1,156	793	2,393	565	1,984	483

RAINFALL

Greater Bombay receives rains from the south-west monsoons, which commence usually in the first fortnight of June and last till the end of September. Ante-monsoon showers visit in May. Occasionally, north-east

monsoon showers occur in October-November, but rarely more than twice in the entire rainy season. The rainfall ranges from 1788.4 mm to 2791.5 mm in 72 to 84 rainy days at Colaba and 1959.0 mm to 2493.5 mm in 69 to 76 rainy days at Borivali.

The account of rainfall is furnished in Chapter 1 of this *Gazetteer* (Vol. I). It may, however, be of some interest to give some additional information from the *Gazetteer of Bombay City and Island*, Vol. I, 1909 (pp. 88-89).

" Rainfall is registered at several places in Bombay and the falls are often found to vary considerably. The vicinity of small hills to the north of the island especially the high hill of Trombay, must affect to no slight extent the amount of precipitation. On an average it is somewhat greater in the north-east part of the island than at Colaba in the south. The average annual fall at Colaba is 71.15 inches. The maximum fall recorded during the period was 114.89 inches in the year 1849, the record minimum falls being 33.42, 33.66 and 35.90 in 1904, 1905 and 1899, respectively, the last being a noted year of famine. Among all climatic elements the fluctuations of annual total rainfall show the greatest departures from the mean, which must have a reflex action to a marked degree upon the general condition of the atmosphere, determining the climate of any particular year. Out of 60 years only 2 years registered annual total falls more than 100 inches; 12 registered between 80 and 100; as many as 36 between 60 and 80; 7 between 40 and 60; and 3 between 30 and 40 inches. The average departure from the mean is 12.40 inches or one-sixth of the total fall."

Table No. 3 gives the statistics of number of rainy days and rainfall in Greater Bombay since 1951 to 1980.

TABLE No. 3

RAINFALL IN GREATER BOMBAY SINCE 1951 TO 1980

Year	Bombay (Colaba)		Borivali	
	No. of rainy days	Rainfall (mm)	No. of rainy days	Rainfall (mm)
1951 ..	72	1,788.4	N.A.	N.A.
1955 ..	N.A.	2,251.4	N.A.	N.A.
1960 ..	78	2,116.0	N.A.	N.A.
1965 ..	67	2,024.1	76	2,493.5
1970 ..	80	2,625.6	N.A.	N.A.
1975 ..	84	2,791.5	N.A.	N.A.
1980 ..	74	1,923.1	69	N.A.

Source.—Statistical Atlas of Maharashtra State, 1951-52 to 1980-81.

CROPS

Rice, fruits and vegetables, and cocoanuts are the crops grown in Greater Bombay. Table No. 4 gives the statistics of area under crops, gross cropped and net cropped area in Bombay since 1922-23 to 1982-83.

TABLE No. 4

AREA UNDER FOOD AND NON-FOOD CROPS IN GREATER BOMBAY SINCE 1922-23* TO 1982-83

(Area in hectares)

Year	Rice	Total cereals	Fruits	Vegetables	Total fruits and vegetables	Total food crops	Oil-seeds	Fibres
1	2	3	4	5	6	7	8	9
1922-23 ..	6,482.26	6,510.59	328.61	820.71	1,149.32	6,510.59	7.28	....
1930-31 ..	5,875.23	5,893.04	....	842.56	842.56	5,893.04	310.80	0.81
1940-41 ..	5,042.44	5,042.44	....	971.25	971.25	5,042.44	313.22	....
1950-51 ..	1,699.68	1,699.68	404.69	242.81	647.50	1,699.68	161.87	....
1960-61 ..	2,900.00	2,900.00	1,300.00	1,100.00	2,400.00	2,900.00	700.00	....
1970-71 ..	1,200.00	1,200.00	300.00	200.00	500.00	1,200.00	200.00	....
1982-83 ..	900.00	900.00	....	....	....	900.00	....	....

Year	Condiments and spices	Guinea grass	Other misc. non-food crops	Total non-food crops	Gross cropped area	Area sown more than once	Net cropped area
1	10	11	12	13	14	15	16
1922-23 ..	7.28	....	7,381.88	7,400.49	15,065.34	110.88	14,945.46
1930-31 ..	29.14	....	6,653.44	6,694.19	13,636.70	60.30	13,657.34
1940-41 ..	12.55	....	5,323.64	5,649.42	11,663.05	58.28	11,604.78
1950-51 ..	....	....	3,075.61	3,237.49	5,584.72	323.75	7,689.11
1960-61 ..	....	....	12,200.00	13,000.00	22,600.00	1,200.00	21,400.00
1970-71 ..	....	5,100.00	100·00	5,400.00	7,100.00	100.00	7,000.00
1982-83 ..	....	....	....	....	900.00	....	.....

Source.—Statistical Atlas of Bombay State, 1925, 1950 and *Statistical Abstracts of Maharashtra State*, 1950-51 to 1970-71.

*Figures for 1922-23 to 1950-51 pertain to Old Bombay District as it existed then.

Rice : Rice is the main crop grown in Bombay and occupied 900 hectares of area in 1982-83. It is grown only as a *kharif crop.*

The figures of production and average yield per hectare of rice in Greater Bombay in 1960-61,1970-71,1980-81 and 1982-83 are given below:—

Year	Production (Metric tonnes)	Average yield per hectare (kg)
1960–61	3,900	1,325
1970–71	2,100	1,750
1980–81	1,600	1,600
1982–83	1,500	1,667

The method of cultivation of this crop is the same as is in vogue in Thane district.

The *Gazetteer of Bombay City and Island* published in 1909 mentions that the total area under rice in Bombay Island in the year 1909 was about 140 hectares. "Rice is the staple crop of the Island and is grown in such areas as are still unoccupied by houses or cocoanut plantations, namely between Sion and Matunga on the east of the railway, and in the Dadar, Varli and Mahim sections. Two modes of rice growing prevail in Bombay, the *lavani* and *rohachi lagvad.* The former and commoner method consists in the transplantation of seedlings, the latter in sowing seeds that have sprouted. The soil and seasons are well-suited to the crop, but its cultivation is not regarded with as much favour as the cultivation of cocoanut palms, being more expensive and in the end much less profitable than the latter. Artificial irrigation of rice is unknown in the Island. Some rice lands are for tending vegetables in dry season. The garden lands are mostly in Sion, Matunga, Sewri and Parel."[1]

The improved varieties of paddy grown in Salsette include the early Kolamba-184, Zinya-31, Kolamba-540 and Kolamba-42. They are all sown in the first week of June. Kolamba is harvested in the last week of September, and this is a very fine variety. Zinya-31 is harvested in October, Kolamba-540 in the third week of October and Kolamba-42 in the last week of November.

Cocoanut : In the year 1909, there were approximately 1,00,000 cocoanut trees in Bombay Island. The area under palms was 352 hectares during the same year. These trees were also cultivated in the gardens of former Salsette. The total area under cocoanut in Bombay Suburban District in the year 1947-48 was 143 hectares.[2] The mode of its cultivation is the same as is in vogue in Thane district.

[1] *Gazetteer of Bombay City and Island,* Vol. I (1909), pp. 121-22.

[2] Dr. S. Soloman, *Crops of Bombay State, Their Cultivation and Statistics,* p. 101.

Fruits : Fruits grown in Bombay occupied 500 hectares of area during 1975-76, and in 1979-80 the area under fruits and vegetables was 400 hectares. Mango is the main fruit crop grown in the city.

Mango : Mango, *amba* (*Mangifera indica*) is grown to a considerable extent roundabout Trombay. The Portuguese were fond of the mangoes grown in Trombay.[1] The mangoes at Mazagaon were very famous in the seventeenth and eighteenth centuries. They found an honoured place not only in the aristocracy in the city but also in the dining hall of Emperor Shah Jahan.

The area under mangoes in Bombay Suburban District was about 324 hectares in 1950-51 and 500 hectares in 1975-76. It is grown as a commercial crop. The method of mango cultivation in Greater Bombay is the same as is in vogue in Thane district.

Bombay provides a congenial ground for mango plantation. Manure is applied when the plants are young to achieve quick growth. The plants start yielding fruits after about six years. Good yield is obtained from the 10th year onwards.

VEGETABLES

Green vegetables are grown in the garden lands as well as in the land near the railway lines of the Western Railway and Central Railway. They are grown on a very small scale and occupied an area of about 200 hectares during 1975-76. Vegetables include carrot, tomato, brinjal, *bhendi*, cabbage, *dudhya*, *kakdi*, *ghosale*, *alu*, *chakvat*, coriander, *methi*, *palak*, radish and onion.

There is no cultivation of pulses, drugs and narcotics, sugarcane and fibres in Bombay.

LIVE-STOCK

The *Gazetteer of Bombay City and Island* gives the following account about live-stock[2] in the past.

Domestic Animals : The chief domestic animals, horses, cattle and goats are only imported into Bombay and are not bred within the island. Buffaloes are imported for milk purposes from Gujarat, the *Gir* from Kathiawar, Delhi and *Hansi* from the Punjab. There being no regular cattle market in Bombay, the *gaulis* or milkmen usually travel to Ahmedabad and other centres to replenish their stock and pay prices varying from Rs. 100 to Rs. 300 for a good milker of recognised breed..... Most of the milch cattle in Bombay are very highly fed and are kept in large stables..... As with buffaloes so

[1] Fryer's Account.

[2] *Gazetteer of Bombay City and Island*, Vol. I (1909), pp. 128-35.

with cattle importation takes place chiefly from Gujarat and Kathiawar, and also from Karachi and Deccan. The best milch cattle are those from the *Gir*, but most cows from Kathiawar are good milkers, giving from 10 to 12 seers of milk daily. The price of Gir cow averages Rs. 150. The Karachi cow, which is now seldom seen in Bombay is also good milker and costs about Rs. 100. The average price of Gujarat cow is Rs. 100. The Deccan cow is undersized, vicious and a poor milker and is therefore rarely found in Bombay dairies. It is most difficult to rear young buffalo-calves in Bombay and 95 per cent of them die as a result of a somewhat unnatural life and of a grain diet, while the calves of cows on the other hand thrive well in the city.

" Bullocks are yearly imported to the number of about 5,000 come principally from the Deccan and Berar and are used for draught purposes. The average price of a first class bullock ranged from Rs. 50 to 100. The price varied according to breed i.e. Deccan bullock Rs. 50, Khandesh bullock Rs. 80, Mysore bullock Rs. 100 and Gujarat bullock Rs. 150.

"There are two buffalo-*davnis* and one bullock-*davni* in the city, the former being situated in Falkland Road and DeLisle Road, and the latter at Haines Road. In these places the cattle-bazar is held daily, the animal being brought and sold by brokers and the owners of the *davnis* receiving a commission on the sale price.

"*Horses* : Anderson notes in his *English in Western India* that several attempts were made during the seventeenth and eighteenth centuries to introduce a breed of English horses into Bombay but the efforts failed owing to the difficulty of keeping the animals alive during the long voyage to India. By 1,800 the importation of horses from the Persian Gulf had become a recognised item in the trade of port, and auction sales, at which big prices were paid, were often held under the Tamarind tree on the old Bombay Green. The horses now imported into Bombay are mostly Arab, Australian and Persian, with a certain number of English, and the very large trade is carried on within the city. In the middle of last century most of the horses required for the army in Bombay and Bengal were purchased in the Arab stables of Bombay. The importation of Australian horses dates from about the year 1847. These horses are imported practically all the year round while the import of Arab horses lasts only from October to February in each year. The Arab horses are imported to the number of about 3,000 every year and reach Bombay *via* Bagdad and Basra. Small batches of country bred horses from Kathiawar, Marwar, the Deccan, the Punjab and Baluchistan are some times seen in Bombay. About 45 per cent of all the horses imported into Bombay are sold for private domestic use, from 5 to 10 per cent of Arabs and a smaller percentage of walers are sold for racing purposes, and the remainder are

taken by the Government Department and by Native States. The export trade in horses is small.

"**Other Animals:** A few goats of common breed are privately kept in the city, but most of the sheep, which come from Marwar, Ahmedabad and the Deccan as also the small and inferior kinds of cattle are only imported for slaughter. Dogs are imported from England, Japan and China. No cattle shows are held in Bombay, but a horse and dog show is held annually upon the Oval in the month of February."

Table No. 5 gives the statistics of agricultural stock including live-stock since 1925 to 1948 in Greater Bombay.

TABLE No. 5

AGRICULTURAL STOCK IN BOMBAY SUBURBAN DISTRICT AND BOMBAY CITY FROM 1925 TO 1948

	Bombay Suburban				Bombay City			
	1925	1935	1945	1948	1925	1935	1945	1948
For Plough:								
Oxen ..	6,432	7,117	5,942	2,419	101	7,765	6,503	4,979
He-buffaloes ..	718	856	321	104	20	163	15	17
For breeding:								
Bulls ..	266	98	197	18	160	90	48	44
He-buffaloes ..	60	149	475	134	125	153	102	159
For other purpose:								
Oxen ..	2,238	17	278	18	22,270	45	40	19
He-buffaloes ..	282	4	108	153	317	5	2	1
Female Stock above 3 years:								
Cows ..	3,800	5,053	108	1,566	3,345	2,179	2,055	2,399
She-buffaloes ..	5,547	12,444	24,601	19,524	17,831	22,764	19,070	18,108
Young stock:								
Calves ..	3,289	4,865	3,082	1,260	2,089	1,517	1,447	1,747
Buffalo Calves ..	1,574	2,535	2,131	2,648	2,996	3,451	3,136	2,637
Total bovine population ..	24,245	33,138	41,055	27,844	49,254	38,032	32,418	30,040
Horses and ponies ..	447	538	275	..	8,224	4,527	5,822	..
Sheep ..	212	106	1,905	111	715	291	256	312
Goats ..	4,179	6,528	5,365	2,387	24,335	19,577	11,517	11,704
Ploughs: *								
Small ..	2,731	2,408	1,758	..	32	44	32	..
Large ..	4	4	38	..	..	1	..	..
Carts: ..								
For Passengers ..	629	397	..	..	..	2,166	57	..
For Goods ..	2,920	1,982	1,680	..	16,599	3,340	2,768	..

Source.—Statistical Atlas of Bombay State, 1925 and 1950.

* Some iron ploughs were shown under small ploughs in 1925.

Table No. 6 gives the live-stock population as per the live-stock census of 1951, 1956, 1961, 1966, 1972 and 1978 in Greater Bombay District.

TABLE No. 6

LIVE-STOCK IN GREATER BOMBAY AS PER 1951, 1956, 1961, 1966, 1972 AND 1978 LIVE-STOCK CENSUS

	1951	1956	1961	1966	1972	1978
Cattle	17,415	17,386	14,260	13,241	11,849	8,217
Buffaloes	47,492	76,464	87,401	91,116	91,543	73,822
Sheep	1,777	8,175	8,526	2,571	6,678	3,078
Goats	26,475	22,615	27,106	13,145	26,002	19,634
Horses and ponies ..	3,657	2,843	2,268	1,158	995	1,187
Other live-stock ..	4,394	7,169	10,394	4,560	7,792	8,615
Total Live-stock ..	1,01,210	1,34,652	1,49,955	1,25,791	1,44,859	1,14,553
Poultry ..	1,00,703	1,46,507	1,96,039	2,29,820	2,59,528	2,69,501

Source.—Statistical Atlas of Bombay State, 1925 and 1950.

Bullocks are now used for pulling of cart, by the cartmen, while cows and she-buffaloes are mainly kept for the purpose of breeding and milk production. Cattles found in the city belong mainly to the imported varieties. The most important among them are the *Dongri* and the *Khilar*, besides some local non-descript varieties. Among the buffaloes, the *Surati* and the *Delhi* varieties are most commonly found. Generally the buffaloes are kept by persons from U.P., called *Bhayyas*, in their cattle stables (*gothas* or *tabelas*). In addition to the bovines, the city has a large number of ovines usually kept for skin and flesh. Goats are more numerous than sheep, probably because the latter do not acclimatize to this region. Goats fetch better prices for their flesh in the market. Horses were kept for pulling carriages and tongas, while the best horses are at Mahalaxmi Race Course.

The pigs of exotic breed of Yorkshire are reared on a planned and systematic basis at the regional pig breeding farm nearby, and are distributed as breeding stock to the cultivators on co-operative lines. They sale pigs to the Bacon Factory at Borivali.

DAIRY ACTIVITIES AND MILK SUPPLY

Greater Bombay Milk Scheme : The population of Greater Bombay has been multiplying over the last 100 years. The growth of population accompanied by improvement in the standard of living of the people has led to a tremendous increase in the demand for milk. In fact the

demand for milk has almost been insatiable. The conditions of milk supply in the pre-Independence days were totally unsatisfactory. During the Second World War, a kind of milk famine ensued in the city. The Bombay Government took some concrete steps to avert the situation of milk scarcity. Stable owners in Bombay were permitted to import from outside the equivalent of dry cattle becoming non-milchy every year. The Government set-up salvage farms at Jamner and Palghar for the protection of dry buffaloes. The Government made arrangement for distribution of milk at cheaper and concessional rates to the consumers. A scheme of Rs. 3.6 crores was operated for implementing this programme during the war time. Mr. M. D. Bhat, who was the Municipal Commissioner in those days, was appointed the first Milk Commissioner and his jurisdiction was confined to Greater Bombay alone.

After Independence the State Government undertook a scheme for procurement and distribution of milk and purchased 1,295 hectares of land at Goregaon, and established the Aarey Milk Colony with a full-fledged milk dairy in 1950. This public sector undertaking was a great boon to the Bombay man who was hitherto the victim of unwholesome, impure and adulterated milk supplied by milkmen. This undertaking could not cope-up with the increasing demand for milk, and hence a large section of the population had to depend upon private unwholesome milk supply. This prompted the Government of Maharashtra to establish more milk processing and supplying dairies in the city. In 1958 the post of Milk Commissioner was replaced by the Commissioner of Dairy Development. The Dairy Development Department of the State Government established two more dairies, at Worli in 1962 and at Kurla in 1975.

The Government Milk Scheme, thus, comprises three dairy plants in Bombay. Besides, the Government accorded sanction for establishment of the fourth dairy owned by the MAFCO at Goregaon in the public sector (29th October 1976). The work of construction of this dairy was commenced in 1978 by the National Dairy Development Board. Later on this dairy project was amalgamated with Maharashtra Rajya Sahakari Dudh Mahasangh Maryadit on 27th June 1983. The dairy is now named as Mahanand Dairy. The actual milk collection and distribution of milk by this dairy was started from 18th August 1983. Now the milk requirements of consumers in Bombay are met from the Aarey, Worli, Kurla and Mahanand dairies as also from private traders.

Milk is supplied to the Greater Bombay Milk Scheme from Chalisgaon, Chiplun, Dhule, Khalapur, Kolhapur, Mahad, Miraj, Nashik, Palghar, Shahapur, Solapur, Jalgaon, Pune, Aurangabad, Nanded, Udgir, Akola, Amravati and Nagpur. Some quantity of milk is produced at the Aarey Milk Colony where a number of stables are located.

About 88 per cent of the milk procured in the State is distributed in Greater Bombay and nearby towns like Thane, Dombivali, Kalyan, Ulhasnagar, Bhiwandi and Vashi. A major quantity of this milk is distributed in Greater Bombay alone. The dairy distribution of milk rose to 12.45 lakh litres in 1983-84 as against 2 lakh litres in 1960-61. During 1984-85 the quantity of fresh milk received by the Greater Bombay Milk Scheme amounted to 36,51 lakh litres, valued at Rs. 1,44,51 lakhs.

Milk brought from various centres is transported in insulated trucks, vans and tankers. It is received at the dairies at Aarey, Worli and Kurla. It is pasteurised in modern plants. The pasteurised milk at Aarey and Worli dairies is stored in big insulated tanks. Thereafter the milk is bottled, sealed and stored in cold storage at a temperature below 12·77°C. The Milk pasteurised at Kurla Dairy is supplied to consumers in pre-packed polythene bags of one litre capacity and distributed through private transport agencies as also Government tankers.

The quantity of whole, cow, standardised, double toned and full cream-milk distributed during the year 1984-85 amounted to 37,22·96 lakh litres, valued at Rs. 1,68,92·21 lakhs. The quantity and value of other products distributed during 1984-85 are given below :—

	Product	Quantity in lakhs	Value (Rs. in lakhs)
1.	Energee Milk (No. of bottles of 200 ml.) ..	179.96	323.93
2.	Ghee (kg.)	15.19	683.56
3.	Paneer (kg.)	0.26	7.21
4.	Table Butter (kg.) ..	4.10	155.66
5.	Cheese	0.15	5.87
6.	Shrikhand (kg.)	0.28	6.83
7.	Ice Cream (cup)	0.96	2.40
8.	Masala Milk (No. of bottles of 200 ml.) ..	0.70	2.09
9.	Cream	3.58	66.53
10.	White Butter (kg.)	0.69	23.23

Statistics of Milk Distribution Centres in 1984-85

	Type of Milk Centre	Nos.
1.	Ex-Dairy Parlour (Aarey Sarita)	22
2.	Government Centres	2,368
3.	Ex-Dairy Centres	1,606
4.	Aarey Dairy Parlours	12
5.	Z Centres	286
	Total ..	4,294

The other information of the three dairies is given below:—

Dairy	Year of establishment	Original value of machinery as on 31-3-1985 (Rs. in lakhs provisional)	Installed capacity per day (lakh litres)
Aarey	1950	141.89	2.5
Worli	1962	341.80	4.5
Kurla	1975	330.52	4.0

Mahanand Dairy : The Mahanand Dairy set up in the co-operative sector with an installed capacity of 4 lakh litres per day receives its milk supply mainly from the district milk unions at Jalgaon and Kolhapur. Additional supplies are also obtained from other unions when necessary. The value of plant and machinery, and building during the first phase of the dairy is Rs. 5·33 crores. The milk procured by the Mahanand Dairy from Jalgaon, Kolhapur and other unions in 1984-85 amounted to 2,85,38,783 litres, valued at Rs. 9,17,59,296. The quantity of whole, toned and skim milk distributed by this dairy during 1984-85 amounted to 9,12,934, 3,08,73,344 and 74,199 litres, respectively, valued at Rs. 11,63,55,508.

These dairies are equipped with scientific equipment and qualified personnel. The Dairy Development Department has also provided research and training facilities in milk technology. There is a Dairy Science Institute at Aarey which admits 30 students every year for a two years course for Indian Dairy Diploma (Dairy Technology). The diploma is awarded by the Indian Council of Agricultural Research (I.C.A.R.) Sub-Committee on dairy education, Karnal. The Dairy Science Institute also conducts courses of six and three weeks duration for the benefit of the secretaries of milk co-operative societies, live-stock supervisors and for the dairy farmers. Four Sunday training programmes on dairy husbandry, fodder farming, dairy technology and poultry keeping were also conducted for interested social workers. The New Zealand Hostel at Aarey is constructed from donation given by the Government of New Zealand. It commands a panoramic view of the Borivali forest and shallow ravines nearby.

TENURES AND TENANCY

Agriculture occupies a very miner position in the economy of Bombay at present. The study of tenures and tenancy of agricultural land in Bombay is, therefore, mainly of historical interest. *The Gazetteer of Bombay City and Island* of 1909 and the *Thana District Gazetteer* of 1882 give a vivid and exhaustive account of the systems of land tenures prevailing in the past. It may be of great interest to refer to these *Gazetteer* volumes for detailed study. What is given in the subsequent paragraphs is a summary of the systems of land tenure in the past.

Pension and Tax Tenure : This tenure appears to have been prevailing since the days of the Portuguese occupation of Bombay. No rates and assessment were fixed for lands held under the Pension and Tax Tenure, nor were then the measurements of lands held under this tenure recorded prior to Col. Laughton's Survey. The rents were " lump sums " bearing no uniform proportion to the quantity or value of the land for which the rent was paid. The term " Pension " takes its origin from the Portuguese word *Pencao* which means, when applied to the estates, a payment for enjoyment of land, the bonus or the premium paid for the fee-simple on the compromise of doubtful tenure. It was not a quit-rent. It was only a royalty rent acknowledging the Government as lords paramount. The payment of the " pension " dated from the Aungier's Agreement of 1672.

The " Tax " of 10 per cent on the produce of landed estates was introduced from 1758 to meet prodigious expenses, to build fortification and other works for the security of the inhabitants. A notification was issued requiring all the Fazindars in Bombay and Mahim to render the Collector an account of the annual produce of their land in order to enable him to levy the tax laid on them. In the beginning the Fazindars objected to the proposal. A few months afterwards the accounts were submitted by the Fazindars, but in the enquiry the Collector found that the estates were under-valued and he directed the Vereadores and some of the private Fazindars to inspect and consider these accounts carefully and to deliver their opinions thereon. This they did on the 19th and 22nd January 1759. The Collector reported to the Government that according to the Vereadores' account, the estates were estimated at Rs. 77,000, and the tax should be levied on this estimate. On the Collector's report the Board passed the orders that the tax of 10 per cent be collected.

In 1774, the inhabitants prayed that this " Tax " might be relinquished, which was imposed in 1758 by the then Governor for raising money for maintaining the war with the French and promised to relieve the same as soon as the war was over. But it remained until the first decade of this century. Some lands under this tenure paid only Pension, some only tax.

It is difficult at this distance of time to assign a reason for such a distinction. Lands used for charitable purposes had been exempted from Pension or Tax. The free-hold nature of lands held under the Pension and Tax tenure and their non-liability to enhanced assessment had always been recognised by Government. The land held under this tenure was found in the Fort, Girgaum, Malabar Hill, Colaba and in the Mahim Woods. Its area at the date of Colonel Laughton's Survey was 2,251 acres and 2,225 square yards.

Fazindari Tenure : It was a kind of sub-tenure, closely associated with the Pension and Tax Tenure. It was a sub-tenure between a private proprietor and his tenant. It is not known how and when it originated, but it is unquestionably of long standing. The owner of the land under Government was known as Fazindar. Land under this tenure was let for building purposes, without in most cases any formal agreement, and subject to a low annual ground rent. The earliest record of this tenure found in the Collector's Office was a report by the Vereadores of the 14th December 1782. But long prescription, according to the report, appeared to have changed the nature of this tenure. The Fazindar of subsequent period had no interest in the land beyond the annual rent, and this had been recognized in numerous compensation cases under the Land Acquisition Act, in which the invariable practice was to award the Fazindar no more than the capitalized value of the rent.

Quit and Ground Rent Tenure : Quit-rent originally implied freedom from liability to military service. From 1718, many strangers were invited to settle on the island. Up to 1718, the new tenants-at-will were probably under an implied engagement to afford military service whenever required. The tax was imposed on all the inhabitants residing within the town walls. The imposition of their tax changed the ancient constitution of the island by commuting military services[1] for a quit-rent. In 1720 a petition was presented to the Board by the principal inhabitants, setting forth that the quit-rent was a heavy tax on them and desiring to be relieved from the same. On the 30th September 1720 the quit-rent was reduced to one-half by a resolution of the Council. The exact principle on which this tax or quit-rent was based is not known. In 1731 an attempt was made to equalize this quit rent. In 1732 the Bombay Government suggested to the Court that all the quit-rents should be remitted, and indeed they were discontinued until 1734, when the Court of Directors replied that they could not agree to take off or abate any of the taxes whatsoever.

[1] But if Aungier's convention reserved personal service of the tenants in every part of the island, it is not apparent how the introduction of the quit-rent on lands in the Fort alone redeemed it. Possibly the levy of this rent in the Fort was sufficient to raise a militia in times of war.

After the fire of 1803 the Company's Council was consulted as to the measures which should be adopted for ascertaining in future the Company's right to the property and " whether it might not be proper and desirable to have a full and accurate plan of the whole island distinguishing the Company's property from others in order that they might be at liberty to raise the rates of such property possessed by the tenants-at-will or others, where the present state of value of land would bear it ". Mr. Thriepland, the Advocate General, however, had suggested a general survey of the island for the purpose of increasing the revenues derived from it.

The plan for re-building the Town was determined upon, but the most wealthy of the natives formed a combination to resist by legal means any mode of lining out the new streets which should tend to intersect the old foundations or to prevent their re-building on them. The Town Committee expressed a decided opinion that the plan should be adhered to and pursued with firmness, vigour and expedition but subsequently moderated their views and in consideration of the losses by fire sustained by the people, suggested that the assessed proprietors should be given full compensation for their lands except for the portions required for widening the streets. The efforts of the Town Committee to carry their plans into effect entirely failed. The natives ultimately succeeded in their opposition and in their desire to rebuild on the old foundation.

Another kind of tenure, also styled quit and ground rent, but distinct in its nature, originated with the New Town. While the inhabitants in the Fort and the Old Town were offering every kind of opposition to the improvement of the portion destroyed by the late fire, matters were taking a different turn in another part of the island. On the 17th February 1804 the Collector reported that he had resumed and delivered over the land to the Town Committee. The allotments made by the Town Committee formed what was known as the New Town. The lands so resumed formed a part of those which had been recovered from the sea and had become known as Salt Batty Grounds. The lands in the New Town appear to have been allotted on the same terms as those given out in the Old Town. Until in 1878-79 the lands in the New Town were amalgamated with those in the Old Town and had since then officially recognised as falling under Quit and Ground Rent Tenure.

In 1813 Captain Dickinson completed his survey of the Fort and submitted his report, in which he classified the different tenures under which the lands in the Fort were held. Mr. Warden, Chief Secretary to Government, examined Dickinson's report on the land tenures in Bombay. Mr. Warden in his report of 20th August 1814 thoroughly reviewed the subject and differed in opinion from Dickinson as to the right of the Company to resume possession of any portion of the ground

within the walls of the Fort excepting such as might be held on special leases.

In 1818 the Collector and the Revenue Surveyor brought to notice the rights of Government. In May 1822, the Advocate General, Wodehouse, made the classification of these lands and considered the lands of the first class as inheritable property and those of the second as lands let to hire, and of course resumable at the pleasure of the Company. The Committee of 1837 thought that the Government had the power of altering the rent on these lands. Mr. Showell writing in 1860, proposed a building rate of 6 pies (12½ reas) per square yard. In 1872 Colonel Laughton suggested that the rate of 6 pies per square yard should be applied to all lands covered with buildings, no matter under what tenure the land might be held.

The power of Government to raise the rents on these lands seems always to have been a vexed question. The Government had recognised the equitable rights of the holders in case of lands held under this tenure. They had placed these lands on the same footing as Pension and Tax lands by extending to them the right of redemption on payment of 30 times the amount of the rent of the holdings pay less than Rs. 10.

Quit and Ground rent land was situated in the Fort, Old Town, New Town and in Colaba, the portions benefited by the fortifications for which the tax was mainly raised. The area covered by this tenure, according to Colonel Laughton, was 973 acres and 682 square yards.

Toka Tenure : The word " toka " means a share of the produce, and the assessment on " toka " lands was formerly paid in kind. Toka lands were also described as " Sweet Batty " grounds and " the greater part of the Company's original nine villages, *viz.* Parel, Bomnolly Coltem, Naigaum, Wadala, Matunga, Sion, Dharavi, Cassabay of Mahim and Worli ". *Toka* lands were situated on the north-east of the island from Sion to Sewri and comprised area of 1,489 acres and 764 square yards. The early history of these lands shows that the Kunbis or tenants who cultivated the lands could be removed at the pleasure of Government. A considerable portion to the sweet batty grounds came into the possession of the Company by confiscation after the Sidi War in 1677. The Jesuits' lands and Rama Kamati's property also devolved upon the Company in 1692 and 1720, respectively. In 1733, some of the cultivators of Company's batty grounds deserted the island and fled to Salsette, in consequence of being forbidden at the instance of the Court of Directors to manure their lands with *kuta* or fish manure. The Company in consequence experienced considerable difficulty in getting tenants, and in 1734 they complained to the Court of Directors of want of husbandmen on the island. Then the Court allowed the use of *kuta*. In 1751 the

Board considered that the batty lands would produce larger annual rents if thye were farmed out in open market. The lands were auctioned accordingly and let as follows :—

Batty grounds in—

(1) Parel ..	Rs. 2,605	(2) Sion ..	Rs. 1,300
(3) Dharavi ..	Rs. 273	(4) Matunga ..	Rs. 1,965
(5) Wadala ..	Rs. 1,761	(6) Naigaum ..	Rs. 982
(7) Bomnolly ..	Rs. 530	(8) Mahim and Worli	Rs. 144

This farming system did not work well. Though it brought a little more revenue to the Company, it kept the Kunbis or actual cultivators at variance with the farmers who were never known to relax their demands even in times of scarcity. However the farming system was eventually abolished in April 1800, from which date the Kunbis paid their dues direct into the Collector's Office. The effects of the farming system were far more disastrous to the Company than might at first be supposed.

After the abolition of the farming system in 1800, the original system of paying in kind appears to have relaxed by this time and the Kunbis had the option of paying their *toka* either in kind or in money, the commutation being made every year at the market price determined by the Governor in Council. The collection of the *toka* varied from Rs. 23 per *muda* and upwards. Once in the year 1803 it rose to Rs. 45. Rent Committee of 1837 thought that the *toka* lands were subject to as heavy a tax as they could afford to pay without driving them out of cultivation. The option of the tenant to pay in kind was annulled and all payments since that year were invariably in money.

In 1876 the Collector, Mr. Arbuthnot, reviewed the state of these lands and revived the right of Government to an increase of assessment. The rates of assessment he proposed were (1) one pie per square yard on lands at Parel, Naigaum and Bomnolly, half a pie on lands at Matunga and Wadala and one-third on lands at Sion and Dharavi. " It is impossible ", he added, " in Bombay to charge different rates for rice land, garden land, building land, grazing land". His rates were guaranteed for 50 years from that date. The guarantee expired in 1929 when a general revision of these *toka* lands was to take place.

Foras Toka Tenure : This kind of tenure appears to have originated during the administration of the Portuguese Government which, with a view to encourage industry and agriculture, allotted to the cultivators of the *toka* batty grounds, certain pieces of land of an inferior quality subject to the payment of a very small rent denominated "Foras". This species of land was therefore, usually styled by the natives *Tokache Foras* that is *Foras* grounds attached to *toka* batty grounds. The distribution of these

spots was usually left to the Vereadores and Mhataras. The *Foras toka* lands came to be alienated from the *toka* by the tenants disposing of them to others at higher rates of rent, and to such an extent that after a time the relation between the two tenures became hardly perceptible.

There was no proper detailed survey of these lands, neither was there any measurement of them. It is suspected that a large quantity of this land had been included in the Foras lands referred to in subsequent pages and had thus been enfranchised as freehold under the Foras Act. The remaining Foras-Toka lands were after Colonel Laughton's Survey of 1872, amalgamated by Mr. Arbuthnot in 1876 with the *toka* lands and have since then shared their fate.

Kurleet Tenure : There was in some parts of the Mahim District another description of ground called *Kurleet* which paid a "petty tribute" to Government. It consisted chiefly of high and rocky ground, such as could not be cultivated with batty. One-third generally of the produce of this ground was the tax levied upon it. The cultivators of this kind of land were always in the habit of changing their plots, creating thereby a corresponding fluctuation in the branch of the revenue under this head. These lands were also in course of time merged in *toka* lands.

Foras Tenure : The lands designated "Foras" play a very important part in the history of land tenures in Bombay. They are also known as "Salt Batty" grounds, a term expressive of their origin as having been reclaimed from the sea which traversed the island in different directions, finding outlets for itself at Back Bay, Mazagaon and other parts, and dividing Bombay into a cluster of islands. *Foras* from the Portuguese word *foro*, the meaning of which is 'rent', but in this island it appears to have denoted the particular rent.

The old salt batty grounds were recovered from the sea by means of the Vellard between Sion and Mahim, while the new salt batty grounds were recovered by means of the Hornby Vellard. The recovery of these lands from the sea took place in the early part of the eighteenth century. In 1738, on the expiration of the leases under which the lands were held free of rent, a resolution to re-let the properties was adopted. In 1740, a publication was issued, giving notice that the Company were willing to receive proposals for farming the same in parcels or in whole and offering ground for cultivation at the low rate. In 1744 the rent was increased, and in 1748 a new measurement had taken place. Some time in the year following (1790), Mr. Smyth, the Collector, laid before Government a report on the subject of these lands, their origin and tenures, and the encroachments. To ascertain and protect the Company's rights, Mr. Smyth recommended an immediate survey of all the lands. The encroachments continued upto 1804. In 1805 the question of the respective right of the Government and the holders of these lands was for the

first time put to a legal test. The question of raising the rent on the salt batty grounds was taken up in 1812. The Government issued a notification on 1st November 1813 that "The Right Honourable the Governor in Council adverting to the very low rents which have hitherto been paid to the Honourable Company by their tenants-at-will of the new and old salt batty grounds, the last augmentation having been from 6 to 9 reas the square *burga* only, has resolved to increase the same in a nearer proportion to the value of the grounds. It is hereby therefore notified that one-third of the produce of the above lands will henceforth be annually collected by Government, commencing with the crop of 1814 and such tenants as refuse to comply with the above resolution of Government will be turned out of possession.".

But the holders of these grounds strongly resisted, and in a memorial not only stated their objections at length, but denied the right of the Government to make the increase and revived the old question of the Company's right to anything more than the then existing rent. The case was submitted to Mr. Mocklin, Advocate-General for opinion. Mr. Mocklin's answer to these questions was in the negative. He was clearly of the opinion that Government had not the right either to increase the rent or to resume the lands at their pleasure. In consequence of this opinion, the measure for increasing the rents was suspended, and the matter referred to the Court of Directors in 1815. The Court replied that "the possessors have a fair pretention to consider themselves as owners of the inheritance, subject to the rents they now pay and also subject to the burthen of keeping vellards erected for their defence against the sea in thorough repairs. We cannot but presume that the present possessors will gladly accept the recognition of their titles upon this condition, and we authorise you to set their minds at rest by making grants accordingly in perpetuity.". Difficulties appear to have occurred in carrying into the effect these directions due to lack of survey of this property and hence the arrangement was postponed until completion of the survey of the island.

A survey was made of this description of property by Mr. Tate in 1827, but it was a general one only and was not effectual for this purpose. From that date upto 1836 no measures were adopted for the same but in 1836 when the Grant Road was projected, the lands, on which it was constructed being " Foras ", the question of the Government's right of resuming them was revived. The Rent Committee replied on this question in 1837, that such a right as also the right of ownership still appertains to the Company with respect to all Foras grounds in the Island of Bombay. Again several times this question was preferred to the Rent Committee for opinion. In 1851, Foras Act VI confirming the holders in their possessions subject to the rents then payable, was passed by the Legislative

Council of India and a Committee was appointed to carry out the provisions of the Foras Act, which fixed different rates to be paid as compensation according to locality. The Foras lands were situated at Byculla, Parel, Worli, Upper and Lower Mahim, Dadar and Matunga with an area of 3,408 acres and 3,266 square yards.

Inami Tenure : The lands in Bombay which fell under this tenure were situated mainly at Naigaum, Parel, north-east of Sion, Fort and a small portion near Dadar and Dharavi. Inam lands pay no assessment to Government nor *judi* or cess of any kind. The area was roughly 5,714,940 square yards. The grants were made to the Lowji (Wadia) family in 1783, 1821 and 1885 on account of the excellent services they rendered as shipbuilders to the Company. The Inam lands at Sion comprised in the grant of 1821 were exchanged with certain lands in the Thane district in 1885.

Leasehold Tenure : Farming of leases was common in early years but regular leases began to be executed in 1758. Leasehold land is held under various conditions and for terms varying from 21 to 999 years. Leases may be divided into old leases and new leases, the old leases, being those granted prior to the year 1894 and the new leases, subsequent to that year. Old leases may be classified under (*a*) Byculla (Mazagaon) leases, (*b*) Colaba leases, (*c*) Kamathipura leases, (*d*) Leases on the verge of the Esplanade, (*e*) Esplanade leases, (*f*) Bombay leases and (*g*) Port Trust leases.

Old Leases : The Mazagaon or Byculla leases were granted between the years 1758 and 1796 and were all for a term of 99 years. Some were renewable while others were not. The Colaba leases were introduced in 1824. Kamathipura leases appear to have had their origin in a Government letter to the Collector, dated 24th July 1844, prohibiting the issue of *sanads*. The lands were put up to public anction and leased to the highest bidders. Leases on the verge of the Esplanade were granted in 1855. The Esplanade leases were the only proper building leases in existence in Bombay. They run for 999 years and not renewable. They were framed between the years 1863 and 1865 on the model of London leases. Bombay leases related to lands in various parts of the island and were granted for terms varying from 21 to 99 years. These were granted in payment of the market value of the occupancy right as ascertained by auction sales together with a nominal yearly rental. They are renewable either on payment of fine or on revision of the yearly rental. These are not building leases. Port Trust leases were leases of lands on the Mody Bay, Elphinstone Estate and the Apollo Reclamations. They are leases for a term of 50 years, renewable at the close of the terms for such further period and at such yearly rent as may be than agreed between lessors and lessee.

New and Renewed Leases : In 1889, Mr. Charles, the then Collector of Land Revenue, pointed out to Government the general inadequacy of the rents levied on lands in Bombay and suggested an increase wherever possible in the assessment so as to bear some proportion to the increased value of the land. To give effect to his proposals and to settle the policy as regards the future assessments or new grants of Government land, Government appointed in 1891 a Committee to study the terms of lease and the principles for ground rent determination. The recommendations of the Committee were approved by the Government with the modification that the amount of annual rent per square yard should not be less than one-third and not more than two-thirds of the estimated value as this would give a safe rental and would leave a sufficient margin for competition. The forms prepared for the same were approved by Government in 1894. They were the basis of the new leases granted subsequent to the year 1894 and were in use in the Collector's Office.

Newly Assessed : This tenure has its origin in Bombay Act II of 1876. The Revenue Survey of 1872 discovered numerous encroachments on Government lands, more especially on land contiguous to the *Inam* lands granted to the Wadia family. When the Act was passed these encroachments were all assessed by the Collector under section 8 and converted into lands newly assessed. This tenure also comprises land granted from time to time to private individuals, after the passing of the Act. The circumstances of all grants, however, do not appear to be alike. The land situated in such localities as Mahim, Dharavi, Sion, Matunga and Naigaum were assessed and granted on payment of an annual assessment. In other cases the right of occupancy was sold by public auction and on payment of a yearly rent, while in other cases lands were assessed and converted from leasehold to newly assessed. In 1889 proposals were for the first time submitted to Government by the Collector for enhancement of assessment upon these lands. These proposals were referred to the Advocate-General for opinion who declared that there should not be any specific limit to assessment in the case of these lands. The area covered by this tenure was 3,06,810 square yards.

Tenancy-at-Will : The term tenancy-at-will denotes a tenancy whether under a formal agreement or not, which can be terminated by one month's notice on either side. The tenancies-at-will commenced as far back as 1850. The lands were granted to individuals without any agreement but the formal agreements were made in the year 1870. Most of these lands, were situated at Mahim, Kamathipura and Chowpati. In 1889, Mr. Charles had prepared a statement about the area of the land covered by this species of tenure to be 1,52,518 square yards. He proposed that the rental should be increased but the proposal could not be accepted. Mr. Spence, who succeeded Mr. Charles proposed to terminate the tenancy and then offer

the tenant an option of a 21 years lease at such rate as might be settled by the Collector with the sanction of Government. His proposal was approved by Government in 1890, Mr. Monteath, who had taken Mr. Spence's place, suggested 99 years as the period for the lease and 4 per cent as the basis for rent. The question of the term of the lease and the rate of the ground rent remained undecided until 1898. Mr. Morison again approached Government on this subject and proposed to treat the tenancies-at-will as follows : (*a*) where buildings had been erected on the lands, to issue notices terminating the tenancy but giving the occupant the option of having his tenancy renewed on a 30 years lease in outlying and 50 years lease in central localities at a rental fixed on the 4 per cent basis and (*b*) where no buildings had been erected, the tenancy to be terminated and the occupancies sold by auction on some specific terms. The sanction of Government to the course proposed under this tenure was accorded in some uses. The area of Government lands held under tenancy-at-will was 74,512 square yards.

Sanadi : The *sanads* of Bombay covered a period of 40 years from 1814 to 1854 during which 828 *sanads* were issued by the Collector. They relate to portions of ground mostly in the New Town and issued to individuals for building-sites. They were mostly of three different types, with exception of a few specially made for some specific purposes. The first of these types under which the grantee was a mere tenant-at-will at the mercy of the Government was in use from 1815 to 1823. This type was modified by the Government in 1823. In consequence of this the grantee felt greater security in his tenancy and could hope for a more equitable return for the loss of his occupancy and for the value of improvements made by him. The type was in use until the issue of *Sanads* was countermanded by Government in 1844. The third type was only used in the case of the grants of land in Colaba. The (Colaba) *Sanads* which were 188 in number were all granted between May and December 1815. The issue of *Sanads* was countermanded by Government order in July 1844, when Government ordered that no Government ground should be given except under lease for a certain period of years. No separate rent-rolls about the exact nature of the *Sanads* were prepared, the lands having been entered in the rent rolls for the quit and ground rent lands and receipt bills issued under that tenure. It was not till 1903 that the long forgotten *Sanads* were brought to light. The *Sanads* were thereafter very carefully indexed and in May 1904, Government offered the holders of *Sanadi* lands a more permanent tenancy of a 50 years lease. The rent for these lands was fixed according to the types. These orders were subsequently modified in April 1906 and again in 1908 by a further offer of conversion into quit and ground rent tenure on payment by a holder.[1]

[1] *Gazetteer of Bombay City and Island*, Vol. II (1909), pp. 335-414.

Leasehold Villages in Salsette : " The term khot or revenue farmer is incorrectly applied to eighteen holders of large estates, comprising fifty-three villages in Salsette. These estates have in all cases been granted by the British Government."

" In almost all of these leases the rental is specified in *mudas*, or rice measures, and not in cash. This *muda* calculation was made according to a system peculiar to Salsette, called the *tijai* or one-third. Under this system the ' Government rental ' is found by multiplying the quantity of *dhep* by two, dividing it by three, and multiplying the quotient by twenty the number of rupees at which each *muda* of land is assessed.

" Except the Kurla and Malad estates, which were given in exchange for land in Bombay, the estates were granted to encourage the investment of capital in land, the increase of population, and the growth of better crops. Except the Kurla, Malad, Pavai and Goregaon estates, which are held in free simple or freehold, these leased villages were charged fairly high rentals, and in most cases were subject to the following conditions. Lands occupied at the time of the lease on the *shilotri*, or according to some deeds, on the *suti* tenure, were not to become the lessee's unless he satisfied or bought out the incumbents. The happiness and prosperity of the people were to be promoted, and the lessee was to protect and befriend them. The lessee was to build reservoirs and embankments, to sink wells, and to grow the better class of crops. The rates of assessment were not to be raised, and no innovation was to be introduced without express sanction. The lessee was to continue all village charitable and religious allowances. Waste land was granted free for forty years. On the forty-first year all land except what was totally unfit for tillage was to be assessed. The lessee was to recover and pay into the treasury, over and above the amount mentioned in his lease, all amounts due on leases granted in the estate. The village was not to change hands without Government leave. The lessee was to possess and exercise the authority of a farmer under Chapter VI of Regulation XVII of 1827. But he was to exercise no magisterial or judicial authority, unless it was duly conferred on him. He was not to make or sell opium, poisonous substances, tobacco, or hemp flowers. The Collector was to have power to inspect the village, and examine what improvement and progress were made. Suits regarding the lease were to be brought in the District Court. Any new system of revenue introduced by Government in other villages of the district was to be applicable to these grant villages."

" ..... Although these leaseholders style themselves proprietors, they cannot claim the ownership of the soil, for the Court of Directors were most reluctant to part with the ownership of the soil and its alienation was jealously watched ..... "

" Another large estate of 3,688 acres, exclusive of salt marsh, was granted by deed dated 1870 to Ramachandra Lakshmanji of Bombay, on a lease of 999 years, in the villages of Ghodbandar, Bhayandar and Mira. This estate was granted because the villagers refused to keep the large Bhayandar embankments in repair.

" The conditions attaching to the grant were that the lessee should pay a yearly rent of £ 679 (Rs. 6,790); that he should keep the embankments, dams and sluices in repair; that he should demand no rent from *inamdars*; that he should demand only survey rates for *suti* and *varkas* lands; that he should keep boundary marks in repair; that he should pay *patils* and hereditary officers claims and allowances; that he should not interfere with rights of way; that he should surrender land free of cost for the Bhayandar railway station; that he should give notice of the assignment of lands; that he should not assign lands without leave; and that the salt marsh lands were liable to resumption if not reclaimed within twenty years." [1]

This system underwent some changes from time to time, and ultimately, the Khoti system was abolished in accordance with the progressive land legislation after Independence.

[1] *Thane District Gazetteer* (Revised Edition), Government of Maharashtra, 1982, pp. 428-29.

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सत्यमेव जयते

CHAPTER 5—INDUSTRIES *

BACKGROUND

BOMBAY IS THE INDUSTRIAL AND COMMERCIAL METROPOLIS OF INDIA, and it would be very much realistic to say that Bombay is miniature India. It has now expanded into a very large industrial complex strung out along a sea-board, and is heavily settled throughout its length and breadth by industries and commercial activities on a mammoth scale. In fact it has assumed the character of the industrial and commercial nerve centre of the entire country. It has been a leading centre of the cotton textile industry for a century and quarter, and more recently of the machinery and chemicals industries. The cotton textile industry is the prime industry which has contributed to its economic prosperity. The history of the textile industry is, in fact, the history of economic growth of Western India. This pioneering industry accelerated the growth of other industries, and provided an impetus to the growth of commercial concerns and financial institutions. The Bombay Stock Exchange was once dominated by cotton textiles.

The mammoth growth of industries is attributable to the industrial infrastructure facilities in this city. Bombay may be said to owe all its prosperity and importance to the immense advantage accruing from its excellent natural harbour. " In fact, it is inconceivable that, in the absence of the harbour, a city could have emerged in Bombay."[1] The harbour and Airport of Bombay provide the main link between London and the Far East, which lent it advantages of easy international communication. Internally, it is connected to other parts of India, by the network of two major railway systems, namely, the Central Railway and the Western Railway, which have their headquarters in Bombay. It is brought into close proximity to other Indian cities by the air services of the Indian Airlines. The Bombay Port Trust has also contributed towards the commercial and industrial growth of this city.

Bombay enjoys the benefit of a developed capital market and the headquarters of many financial institutions and banking system. The share market and network of banks have contributed to the availability of industrial finance right from the last quarter of the previous century. The Imperial Bank of India, and its successor, the State Bank of India,

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[1] C. Rajagopalan, *The Greater Bombay*, 1962, p. 39.

as also the Reserve Bank of India have played an important role in the making of Bombay's industries. The Life Insurance Corporation of India, with its headquarters in the city did not lag behind in this process.

The city owes its industrial oppulence to a class of enterprising and enlightened entrepreneurs, a few of whom are mentioned in the history of cotton textile industry. These men of vision, Parsis, Gujaratis, Maharashtrians, Marwadis and Muslims strived for the development of industry. A due credit should also be given to a number of Europeans who not only pioneered some industries but also manned them. The growth of education with the establishment of the Elphinstone College, the Wilson College and the Bombay University, and later, the V.J.T.I. facilitated the availability of educated and trained personnel for industry and commerce.

The cheap hydro-electric energy made available by the generating stations at Khopoli, Bhira and Bhivpuri by the Tatas in the tens of this century also contributed to the immense growth of industries in Bombay. Hydro-electric power generated at the very door of Bombay in the hey-days of industrial growth was really a great boon.

From the very beginning of British administration, Bombay emerged as the industrial nerve centre. It became the gateway of India for Western traders, and in a short period developed as the best port on the Arabian Sea coast, the most important centre of commerce, the seat of government, the locus of higher educational institutions, and the major centre of textile industry.

Although cotton textile continues to be the major industry of Bombay, the chemicals and chemical products industry overtook it in the past few years. As at present, the invested capital, output and value added on manufacture in the chemicals and chemical products industry are very much higher than in the cotton textile industry. This point is elaborated in the relevant sections in this chapter on the basis of statistics from the Annual Survey of Industries. Cotton Textile is now suffering from several ailments, a number of units falling ' sick '. The phenomenal growth of the metal products industry, machinery manufacturing and electrical machinery industry ever since the Second World War has added to the importance of Bombay in the country. The petroleum industry, the Bombay High oil exploration project and the petrochemicals complex in Bombay have however elevated the industrial status of Bombay in the Indian economy. These vital industries have attained a unique position for the city in the country's economy.

Like any other human creation there is a black side of a spectacular progress also. The location of industries in Bombay is very defective, and the city is now suffering from many socio-economic ailments, the cures for which are not easy. Industrialisation and urbanisation which

are so closely interlinked have bred sordid and squalid conditions of living.

Though the industries are scattered all over the Island, there is a greater degree of concentration in the north. The actual industrial quarter may, roughly be defined as the area enclosed by Victoria road in the South, Reay road and Sewri road in the East, Tilak road in the North and by Gokhale Road (North), Worli road and Haines road in the West and includes sections like Worli, Byculla, Nagpada, Tadwadi, Mazagaon, Sewri, Lalbaug, Parel, Naigaum, and Chinchpokli. The industrial zone so defined is located almost in the geographical centre of the City.

" The location of the industrial zone in the centre of the city has proved to be highly undesirable."[1]

Dr. P. S. Lokanathan observes, " Bombay city is fast ceasing to occupy that predominant position in the cotton industry which it once held and ' deglomerating ' tendencies such as high rents, high rates of wages and relatively high cost of transporting goods to distant inland markets are counteracting the former tendency towards concentration."[2] This is however too extreme a view, and has to be taken at a discount.

Greater Bombay as a separate area unit came into existence in April 1950, when the Suburban District was merged with Bombay city for purpose of municipal administration. Its boundaries were further extended over the Salsette in 1957 upto Dahisar on the Western Railway and upto Mulund on the Central Railway. It now embraces an area of about 603 square kilometres.

A few words about origin of industrialisation in Salsette which now is covered by the Bombay Suburbs. The first industry in the modern sense of the term to be established in Salsette was cotton textiles. In 1910, there were reported to be several mills in Kurla, engaged in the manufacturing of cotton cloth and woollen cloth in steam factories. Kurla is still an important centre of mill industry. In 1929, as many as 148 factories were functioning in Salsette, of which three were cotton mills.

Industrialisation in the real sense may be said to have commenced only after 1930. The variety of industries in Salsette multiplied between 1930 and 1941. There was a rapid increase in the number and variety of industries during the Second World War. According to the records of the Chief Inspector of Factories, there were 926 factories in Salsette in June, 1958.

A few observations are made below on the location of industries in the suburbs, formerly styled as Salsette. The observations are based on personal investigations.

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[1] C. Rajagopalan, *op. cit.*, p. 48.

[2] Dr. P. S. Lokanathan, *Industrial Organisation in India.*

Between Kurla and Mulund several new industries have developed during the last about 30 years. Kurla-Ghatkopar-Vikhroli and Bhandup is mainly an automobile, metal products and machinery industries zone. Further beyond upto Mulund is a zone of chemicals and drugs industries, paints and inks. These two zones have housed several large factories, some of them with foreign collaboration and with giant plants. Chembur and Trombay is restricted industrial area with a cluster of petroleum refineries, a petrochemicals complex, a giant fertilizer plant, a thermal power station and the Bhabha Atomic Research Centre.

Between the Eastern and Western suburbs, a large industrial zone was developed during the fifties and sixties. Unlike the industrial core in the city the industries here are mostly medium sized or small sized, and are located in several industrial estates at Saki Naka, Marol, Powai, etc. It is largely a metal products, machinery, machine tool and electrical machinery zone. A good many chemical products factories and film industry are also located in this area. There are also many giant factories located in this zone. Large machinery and machine tool units and pharmaceuticals have developed along the Kurla-Andheri Road, and particularly at Powai, Marol and Saki. Film industry is localised along the fringe of this zone.

Kurla-Ghatkopar-Vikhroli-Bhandup is however the largest industrial zone in the suburbs. North of the Kurla textile zone, several electrical and engineering factories are located. A relatively cheaper land and nearness to water and power mains have enabled rapid expansion of the suburbs. These newer industrial areas show a greater degree of differentiation according to type and their association with auxiliary industries.

The residential Western suburbs have mainly food processing industries like confectioneries and drinks. However huge plants have been established in recent years at Goregaon, Kandivli, Malad and Dahisar. It is only during the last decade that some big units have been started along the Western Express Highway beyond the Santacruz Airport.

Many of the suburban industries are the result of post-war expansion of the old industrial units in the Island City. Many others have diversified their production, while a majority of them have entered into new avenues of production. There are also many ancillary industries.

This chapter is divided into sections with the objective of furnishing a cohesive and cogent review of industrial growth in Bombay. The first section deals with Industrial Development in Bombay prior to First World War. The second section gives a narrative of Industrial Development between the First World War and the year 1957. The narrative in this section has been brought right upto 1957, in view of the pattern of data available. The year 1957 is significant also because the present territorial jurisdiction of Bombay came into existence in that year.

In the rest of the chapter is given a detailed account of the major industries, followed by their various segments. An attempt is made to classify the industries on the pattern adopted by the Annual Survey of Industries, 1973-74 and 1975-77, conducted by the Government of India. An account of the segments of the major industries is given after that of the major industries. The classification, in a few cases, does not coincide with that of the Annual Survey. The narrative of the industries is attempted to be given in a historical perspective. The Annual Survey statistics cover the census and sample sectors, and represent annual averages during the respective survey periods. Although the analysis of the structure of the various industries is quite exhaustive, the conclusions attempted at some places are by no means claimed to be accurate.

INDUSTRIAL DEVELOPMENT PRIOR TO WORLD WAR I

The momentous growth of this industrial metropolis of India has a very long history. The first industry in Bombay, in the proper sense of the term, was established by the East India Company in 1676 under patent by the British Crown to the Company on 15th October 1676. The Cotton Textile Industry is however the most important organised industry with the longest history which can be traced to the last quarter of the seventeenth century. Cotton goods constituted one of the oldest exports of India as they formed a large part of the business transacted by the East India Company. In connection with encouragement of cotton and silk weaving in the island of Bombay a letter from the Surat Office of the Company to the Bombay authorities, dated 4th November 1676, directed the latter authorities to invite and encourage weavers from the Deccan to settle in Bombay so as to increase the manufacture of calicos for exports. The Surat Office also desired the Bombay Office to handle this affair very seriously and earnestly by supplying yarn and necessary equipment.* By 1676 a regular industry had been established. The Company imported silk and cotton and distributed it to the weavers who worked under a *mukadam*. In 1683 it was decided to establish a manufactory of knitted stocking. By 1735 the Bombay cloth had earned a considerable reputation. The Council at Surat was directed by the Company in 1735 to further pursuade weavers from Gujarat to settle in Bombay, by giving them incentives of monetary advances and housing. It was in 1758 that the authorities arranged for the immigration of certain Bassein weavers, who were to manufacture goods for Jeddah and other western ports.

* For text of the letter refer *Gazetteer of Bombay City and Island*, Vol. I, 1909, pp. 461-62. The letter gives clear directives to the Bombay authorities how, they should encourage weaving industry in Bombay and what industry and ingenuity they should employ in that affair which would be well esteemed by the East India Company.

The exports of cotton manufactures from Bombay, as also from India, to England began to decline and became quite insignificant soon after the opening of the nineteenth century. This was because England began to manufacture her own cloth and owing to the use of machinery she went rapidly ahead of India. About 1813 the ports of India were thrown open to English merchant adventurers, but protective duties of 70 to 80 per cent were imposed in Great Britain on cotton and silk manufactures from India while some items were totally excluded. This was motivated by exclusive protection to the English industry against Indian goods. English cotton goods now began to be imported into India. The growth of the mill industry in India, especially in Bombay, tended to check its advance to some extent. The first cotton mill in Bombay was projected in 1851 by Mr. Cowasji Nanabhai Davar and commenced work in 1854[1] as a joint-stock company under the name of the Bombay Spinning and Weaving Company.[2]

By about 1909 the city had nearly 100 cotton mills, and thousands of workers found daily employment in them. But the handmade manufacture of cloth had yet not been wholly extinguished. Cotton-weaving was a recognised hand industry, especially among the Julahas, who generally wove coloured *saris* for Indian women. Silk cloth was also manufactured on a considerable scale. The various kinds of brocade known as *kincobs, himrus, masrus, lapas* and *tas* were worked into *saris*, *cholis*, waistcoats, shoulder cloth, *pagadis, kamarbands*, etc.

The weaving artisans were mainly concentrated in Duncan Road, near Byculla and in the vicinity of Babula Tank (Near J. J. Hospital). Reliable estimates showed that handlooms still used much of the yarn imported into this country and that a large quantity of cheap of cotton goods of various sorts were turned out by the Bombay weavers, both Hindu and Muslims, who were enumerated at 7,471 by the Census of 1901.

A large part of the cloth manufactured by the Bombay mills was dyed and processed locally and exported to the Deccan and Konkan region. The dyers (*Rangaris*) were mostly Muhammadans from Satara, Kathiawar, Gujarat and neighbouring districts. The Census of 1901 enumerated about 1,200 dyers, including silk dyers in Bombay. Some raw material for dyeing was imported from China. The process of dyeing cotton cloth or thread in various colours was very elaborate. The colours were very fast and exhibited aesthetic sense of the artisan. Naturally, the processed cloth was a choice of the connoisseur. There was a wide range of dyeing processes, such as, *kusumba* dyeing, yellow dyeing, purple dyeing, green dyeing, black dyeing and indigo dyeing.

[1] The year of establishment is also mentioned as 1856 in some sources.

[2] The first cotton mill in India was erected on the banks of the Hughli in 1818 near Calcutta.

Printing of cloth was yet another hand-industry in Bombay, *chindari* or knotted design, also called knot-dyeing or *bandhani* was a beautiful method of decorating cotton and silk goods. It closely resembled printing, and it could be inferred that it had its origin in Gujarat, Cutch and Sind. A large number of *chindari* workers were found in Bombay, their central place of business being near Nall Bazar, though the work was carried on in other parts of the city also.

SALT MANUFACTURE

Salt making is one of the most important and the oldest industries of Bombay. Its geographical condition lends it a natural advantage for the development of this industry. Though the industry has declined and dwindled progressively with the human encroachment on the creeks and estuaries of old Bombay during the last century and a quarter, it was once a prosperous industry in the past. The original Bombay of seven islands had produced considerable quantities of salt which was exported not only to upper India but also in considerable quantities to foreign countries.

The salt-works of the island of Bombay, by the beginning of this century, were situated in a compact group in the north-east corner between Sewri and Sion on the borders of the Bombay and Mahul creeks. In 1872, when the Bombay Salt Department was reorganised, the 21 salt works produced an average of 6,50,000 maunds of salt per annum. In 1889, two new private works were opened, and in 1890 a third, the Wadia Mahal, which was regarded as one of the most important sea-salt works in the Bombay Presidency. About 263 acres of land was granted by Government in perpetuity and rent free for this salt work to Khan Bahadur Jamsetji Dhunjibhoy Wadia in recognition of his long and meritorious service in the Government Dockyard.

In 1908 there were 23 salt-works which constituted the so called Matunga taluka. With the exception of five government salt-works which were farmed, the Matunga works were the property of private persons with limited rights. These persons, 79 in number, were called as *Shilotris* who belonged to the Prabhu, Parsi, Muhammadan and Indian Christian communities, some of them being wealthy capitalists. The actual workers at the salt pans comprised Agris, Kolis and Indian Christians from Bombay as also Dublas and Kharvas from Surat, who used to come to Matunga during the fair season.*

The salt produced at Matunga was largely exported to Central Provinces, Berar, Bengal, Mysore and the Nizam's Dominions, the bulk of it being consigned by railway from Dadar Station. It was also in much demand

* For details of Salt industry refer to the *Gazetteer of Bomby City and Island*, Vol. I, 1909, pp. 481-84 and to *Thana Gazetteer*, Vol XIII, Part I, 1882, pp. 363-78.

in Nasik, Khandesh and Ahmadnagar districts, to a lesser extent in Belgaum, Dharwar and parts of Karnataka. Salt was transported in carts while that destined for Calcutta and the Malabar Coast was transported in boats and steamers with a capacity of 1,000 to 2,000 maunds.

GOLD AND SILVER THREAD MANUFACTURING

Bombay had once a prosperous industry of gold and silver thread manufacturing. There were about 1,000 embroiderers and lace and muslin makers in the city as per the Census of 1901.

OIL PRESSING

Oil pressing in primitive oil presses is an old industry. Bombay contained some years ago a few large oil pressing establishments. The industry was mainly confined to pressing of sesamum seed, coconuts and groundnut. At the beginning of this century there was only one oil-mill worked by machinery.

SUGAR REFINING

Sugar refining was a small industry with 25 factories licensed by the municipality in 1909. Refined sugar was mainly imported from Mauritius. But the Bombay sugar was sent to Baroda, Surat, Bhavnagar, Ahmedabad, Zanzibar and even to China.

BIDI AND SNUFF MANUFACTURING

Tobacco and snuff manufacturers and sellers in Bombay numbered about 2,800 according to the Census of 1901. It was a very prosperous industry employing mainly Kamathi women. It was mainly concentrated in Kamathipura, Falkland road, Duncan road, Grant road, Kalbadevi road and Girgaum. The tobacco was mainly imported from Gujarat, Deccan and Madras.

IRON WORK

Though Bombay had to import all her iron as well as copper from England, great progress had been made in the iron industry. There was hardly any description of iron work which could not be manufactured in Bombay in 1909. The import of kerosene oil had given rise to the new industry of iron foundries, the account of which is given afterwards in this chapter.

WOOD CARVING AND FURNITURE MAKING

This industry was celebrated for the manufacture of carved blackwood furniture which was carried on in Bombay by the artisans from Surat and other places. Screens, teapoys, writing desks, flower-stands and cupboards manufactured in Bombay were of a very elegant appearance and often of exquisite design.

INLAID WORK

Inlaid work, for which Bombay had long been famous, was probably introduced about 1800 A.D. from Hyderabad (Sind). It might also have

its origin in the Punjab as it was familiarly known as ' Multan Work '. The industry provided employment to several hundreds of workmen in Bombay. The chief articles made were paper-knives, work-boxes, writing desks, watch-stands and several articles with beautiful patterns. The patterns in common use in Bombay were the circle, the hexagon, the *tinkoma* gul, compounded of wire, ebony, ivory and stained horn, the *gul;* and for borders the *gandiris,* compounded of all the materials, the row of beads, the *sankru hansio* and the *poro hansio.* The manufacturers of inlaid work dealt largerly in carved sandalwood boxes from Kanara and Gujarat, and sometimes themselves employed wood-carvers.

COACH FACTORIES

Bombay found a congenial home for coach factories, the first factory being established in 1808 by Pallonji Bomanji Palkhiwalla at Dhobi Talao*. There were about three hundred coach factories in Bombay in 1909.†

The carriages were exported to Kabul, Persia, Singapore, Baroda, Kathiawar and other parts of India. The introduction of motor cars caused a decline in this industry which is hardly surviving today.

LIME KILNS AND BRICK AND TILE MAKING

It may appear fictitious to-day that Bombay had several lime kilns. But it is a fact. There were three kinds of lime kilns in Bombay. One was used for manufacturing lime for whitewashing purposes, another for making lime for masonry works, and the third for lime intended for eating. The lime for eating was prepared from Muscat stone. White-washing lime was prepared from oyster-shells from Ratnagiri and masonry lime from scraps of marble and Porbunder stone.

Bricks and tiles were made in Bombay on a large scale. The Bombay, Brick and Tile manufactory, situated at Sewri, supplied very good tiles and earthen blocks suitable for building purposes. The brick and tile industry provided employment to 800 persons, while the lime kilns engaged 420 in 1901.

POTTERIES

The first noteworthy pottery was opened at the hands of the Governor of Bombay in 1877 at Naigaum road and was known as the Pherozshah Pottery Works, white clay was obtained from Cutch-Bhuj and Jabalpur, and red clay from Kurla. Pottery was manufactured at about 20 places in the north of the island in 1909. The J. J. School of Art Pottery which

* He took his surname from the trade in which he was engaged.

† The industry was very flourishing, each palanquin being worth about Rs. 400 to Rs. 600 depending on the quality of decoration. The palanquins were followed by other modes of coaches such as shigram, canoe-shaped phaeton, buggy, landau, brougham, vitcoria and the landaulette.

was made from Santa Cruz and Cutch clay was regarded to possess a high order of merit. The industry provided employment to about 750 workers in 1901.

MARBLE WORK

The pioneers of marble* industry in Bombay were Messrs. F. Mureglia & Co., Italian by birth, who owned a shop in Fort area. The majority of marble carvers in Bombay were Christians as Hindus believed superstitiously that this work portends calamities. Marble industry provided employment to 850 persons in 1901.

SOAP MANUFACTURING

The first soap factory was opened at Mahim in about 1879, the same being taken over by a Parsi subsequently. There were 19 soap factories in Bombay in 1909. The principal raw materials comprised castor oil, cocoanut, *mhowra* seed and caustic soda. Castor oil was used for soft soap supplied to the mills for sizing purposes and also for manufacturing Turkey red oil. Marine soap was manufactured from cocoanut oil, toilet soap was prepared from *mhowra* seed oil, while tallow was added to give aroma to the soap.

LEATHER INDUSTRY

It is one of the oldest cottage industries, which employed 5,500 workers in Bombay in 1901. Good quality shoes, saddles, bags and oil jars (called *dabaro*) were made in the European fashion by the city artisans. In earlier times army accoutrements, manufactured in Bombay were supplied to the British troops. Mr. Tanner of Bombay is said to have made a large fortune in this business during the Mutiny of 1857.

Sir Adamji Peerbhoy opened a large tannery and factory, worked† by machinery near Dharavi in 1887 which turned out excellent work. A considerable quantity of tanned leather was exported to Europe and Africa. The chief articles manufactured included saddlery, boots, shoes, belts, trunks, bags and various smaller articles. The factory was managed by European supervisors, and provided employment to 1,000 workers. The leather used was mainly harness leather, bridle leather, hog-skins, calf patent leather, sheep skin, bag hide and gaiter hide. A very little Russian leather was used as the Bombay climate was not suitable for the same. American leather was imported from London.

Besides the industries narrated above, there were several small industries which may appear insignificant in the context of the mammoth

* Though India abounds in marbles of various kinds and shades, most of the marble was imported to Bombay from Italy and other parts of Europe and America in the form of blocks or slabs. The masons of Porbandar have adorned many of the beautiful facades in the city.

† It was named as Western India Boot and Equipment Factory.

industrial growth of this industrial city of today. But they were of immense significance in those times when industrialisation was only in its infancy. Most of them combined industry and artisanship with aesthetic value. Their products were not only useful but were also artistic. A mention must be made of the manufacture of sweetmeats with very rich tastes and flavours. Besides the usual ingredients, the sweetmeats contained almonds, pistachios, saffron, cardamom, nutmegs, rosewater, etc., which can hardly be dreamt of today. The Bombay sweets were exported to Europe, Africa, China as also to all parts of India. While sweetmeats makers numbered 350, the sellers numbered 1,400 in 1901 in Bombay.

Bakers numbered 1,400 in Bombay in 1901. One of the best known bakeries of old times was established by a Goanese in Old Hanuman Cross Lane in the first decade of the nineteenth century. Besides Goanese, Mughals, Muhammadans and later Parsis, dominated this industry. The *Jariwalas* engaged in the recovery of gold and silver from old embroidery had a thriving industry in Bombay. They had a perfect technique of extracting the valuable metals from old *jari* clothes.

Brass and copper craftsmen produced household utensils, lamps, *chattis* of all shapes and sizes and water pots and *lotas* of all descriptions. The copper bazar opposite Mumbadevi Tank, was the busiest street in the city in those times as it is today. There were about 4,000 brassworkers and coppersmiths and 5,000 blacksmiths in Bombay in 1901.

Though sculpture could not be said to be an industry, stone-carving was carried on in the form of architectural ornamentation on a large scale in Bombay. Stone carving was also taught as a subject of studies in the Sir J. J. School of Art.

Then there were three candle manufactories which manufactured pure wax candles for the use of churches, and two others which prepared parafin candles by machinery. Some other industries were engaged in wire-drawing for embroidery and lace work and electro-plating and silver-plating of trays. Their products were valued for the aesthetic sense of the craftsmen. Bombay had also quite a few expert Chinese cane-workers whose products were in demand from the European community in India and the Parsi gentry of the city.

FACTORY INDUSTRIES

As stated earlier the history of factory industries in Bombay can be traced to 1676 when the Mint of the East India Company was established. This was followed by establishment of a cotton pressing factory in 1694, which was in the nature of machinery for screwing loose bales of cotton into size suitable for export. These presses were then known as screwing houses, and the machine themselves consisted, in 1809, of a square wooden frame in which cotton was placed surmounted by a beam of great weight

which was fixed to the end of a powerful screw. This screw was worked by a capstan in a chamber above to each bar of which there were often 30 men. They turned the screw with great swiftness at first shouting the whole time, the shouts ending in something like loud groans as the labour became heavier. Bombay city contained 13 cotton presses in 1868. This industry however declined mainly because much of the cotton pressing was done in the cotton growing districts of the Bombay Presidency to save the cost of transport to Bombay. In 1909 there were only seven cotton presses employing 600 operatives.

In 1725 Bombay contained a wind mill for the grinding of wheat, situated on the Esplanade. It existed quite for long but found its closure in 1808.

Industrialisation in Bombay gathered momentum in the latter half of the nineteenth century. The factories gradually eclipsed the handicrafts for which the city was famous at one time.

The period between 1860 and 1865 was one of feverish activity in Bombay, and was marked by progress in every respect. The railway communication of the island advanced noticeably with the opening of the Bhor Ghat on 21 April 1863. The opening of the first section of the Bombay, Baroda and Central India Railway in 1860 encouraged the growth of trade and industry in Bombay. Further encouragement was afforded by the institution of regular service of coasting steamers and by the opening of the Suez Canal. The latter development in 1869 effected a complete revolution in the carrying trade of Bombay, which had upto that date been restricted by a lengthy voyage round the Cape of Good Hope.

The third fundamental cause of the growth of Bombay was the enormous increase in the cotton trade and the subsequent Share Mania[1] of the years 1861–65. The out-break of the Civil War in America, which at once cut off the supply of American staples gave unprecedented spurt to the export demand for cotton, piece goods and other articles. So sudden was the demand, so high the range of prices, so vast the profits, that a boom set in which gave rise to what was called the Share Mania. Adventurers from all parts were attracted to Bombay, all sorts of ingenious schemes were devised for putting the newly acquired wealth to use. Apart from making a good fortune on the Stock Exchange a good amount of money was invested in establishment of joint-stock companies.

By 1865, there were ten mills working with 2,50,000 spindles and 3,380 looms. They provided employment to 6,600 workers and consumed about 42,000 bales of cotton.

[1] For details of the upheavals which accompanied the Share Mania, *see Gazetteer of Bombay City and Island*, Vol. II, 1909, pp. 163-69.

With the rapid growth of industries the Factory Act[1] was enacted in 1881 for the first time and it was amended in 1891 to meet the requirements of proper control and direction of industries. In 1908 the total number of factories falling within the scope of the Factory Act was 166 of which half were cotton mills. Most of these factories worked throughout the year and provided employment to 107,739 men, 23,767 women and 4,157 children.[2]

The following table shows the classwise total number of factories in Bombay city in 1892, 1896, 1901 and 1908:—

	1892	1896	1901	1908
Cotton mills	64	68	76	85
Silk mills	1	2	2	2
Woollen mills	2	2	1	3
Hosieries	3	2	2	2
Cotton presses and gins	11	9	8	7
Dye works	2	2	2	4
Flour mills	3	5	5	5
Oil mills	2	2	1	1
Tannery	..	1	1	1
Saw mills and timber works ..	1	2	2	2
Iron Works and Foundries	8	8	8	15
Locks and cutlery works	..	..	1	1
Metal works	..	..	..	2
Tin works	..	..	1	3
Paper mills	..	..	..	1
Workshops	6	6	1	9
Art manufacture	1	1	7	1
Gas works	1	2	2	2
Gun carriage factory ..	1	1	1	..
Arsenal	1	1	1	1
Mint	1	1	1	1
Dockyards	4	4	3	3
Printing Presses	7	9	10	16
Power generator*	..	..	..	1
Bone mill	..	..	..	1
Total ..	119	128	138	166

It would be evident from the above table that by 1908, the most important industry in Bombay city was the cotton textiles, followed by printing presses, iron works and foundries and workshops. The number of cotton textile mills increased from 64 in 1892 to 85 in 1908 providing an average daily employment to about 101,536 persons. The number of iron works and foundries increased from eight in 1892 to 15 in 1908, and the number of

[1] The Factory Act originally appears to be applicable to factories employing more than 50 workers.

[2] It appears that child labour was not forbidden under the Factory Act of 1881.

* It was owned by the Bombay Electric Supply and Tramway Company.

printing presses from seven in 1892 to 16 in 1908. Most of the workshops belonged to the railways. Among the notable iron works was the Byculla Iron Works now known as Richardson Cruddas. Godrej Boyce and Company was the foremost. The Bombay Gas Company came into existence in 1863 and gas light was introduced in Bombay in 1866. These obviously excluded the factories which were not within the purview of the Factory Act as they were working with less than 50 operatives and many of them were without power-driven machinery. Among this category were Sugar factories (8 in number), Rope factory (1), Grain Crushing Mills (6), Carriage Factories (6), Mechanical and Iron Works, Iron and Brass Foundries and Smithies (68), Soda Water Factories (22), Ice Factories (5), Oil Factories (3), Flour Mills (8), Woollen and Cotton Cleaning Factories (6), Saw Mills (4), Printing Presses (39), Lithographic Presses (5), Chemical Works (3), Button Factory (1), Dyeing Works (7) and Miscellaneous (10).

Cotton Textile Mills[1] **:** The manufacture of yarn and cloth by machinery is the prime industry of Bombay city ever since the dawn of industrialization. Although to Bengal belongs the honour of opening the first factory for spinning cotton by steampower in India, it is Bombay which has been a home of the industry. The first cotton mill was erected on the banks of the Hughli in Bengal in 1818. The first mill in Bombay was projected by Mr. Cowasji Nanabhai Davar in 1851 under the name of Bombay Spinning and Weaving Company. It commenced work in 1854[2] as a joint-stock company. The Oriental Spinning and Weaving Company was opened in 1858 with a capital of Rs. 25 lakhs. By 1865 there were altogether ten mills in the city. They provided employment to 6,600 persons and consumed about 42,000 bales of cotton annually. The industry suffered a temporary glut in 1865-66 mainly due to the abnormal price of raw cotton and also due to the agents and directors of companies having taken large advances from banks at exhorbitant rates of interest and due to lack of demand on account of financial crash after the boom. This was however a very short-lived phase and the demand started picking up in the domestic and European markets from 1867. This could be attributed to the fact that the Bombay goods were durable than the finer and heavily processed cloth produced in England.

Seventeen new mills had been established between 1870 and 1875, thus making a total of 27, working with 7,52,634 spindles, 7,781 looms, the capital investment in the industry being Rs. 2,24 lakhs. It was from 1875 that the cotton industry in Bombay registered a rising trend upto 1898 in which year the number of mills stood at 82. Between 1892 and 1898 the total number of factories in the island rose from 119 to 136,

[1] Detailed history is given subsequently in this chapter.

[2] 1856 according to some sources.

the increase being almost entirely due to the opening of new cotton mills. It is remarkable that this increase was inspite of the belief that a fall in price of silver had a depressing impact upon trade and despite the fact that there was a rapid glut in Chinese market, which was a principal buyer of Bombay yarn.*

The condition of the industry was described as 'most critical' in 1899; and by the end of that year nearly all the mills were closed for three days in a week while some were wholly stagnant. The number of mills was reduced to 79 in 1904. It was from 1903 that the condition of the industry began to improve and by 1905 and 1906 the industry experienced conditions of revival.

The demand for cloth had increased and the general condition of growth was quite satisfactory. In 1908, there were 85 mills, with 2,734,863 spindles and 35,967 looms. They provided an average daily employment to 101,536 workers, and consumed 1,200,000 bales of cotton.

The Bombay mill-owners had many advantages over their western counterparts. The labour was cheap and abundant. Though the cost of erecting machinery was comparatively high and the quality of raw cotton low, the Bombay cotton had definite advantages.

The Bombay mills produced about 360 million pounds of yarn in the year ending with March 1909. The yarn was partly consumed in the local mills and was partly exported to other parts of India and to China. The total exports to China were about 6,80,000 bales per annum.

The cloth produced in Bombay amounted to about 110 million lbs. The principal varieties manufactured being shirting, longcloth, T-cloth, domestic, sheetings, chadars, *dhoties*, drills, jeans and tent cloth. Coloured piece-goods were also woven. The cotton weaving industry was just emerging by the first decade of this century. It had to face keen competition with imported Manchester goods of a superior quality. But the *Swadeshi* movement which had taken roots at the beginning of this century had given a distinct impetus to Bombay mills. Before the outbreak of first World War, Bombay cloth was exported to Arabia, Mozambiqe, Zanzibar, Abyssinia (Ethiopia) and Turkey. The Bombay mills, with the exception of a few belonging to private owners, were limited liability, companies, governed under the provisions of the Companies Act of 1866 and 1882. Their affairs were supervised by Boards of Directors and managed by a Secretary or a firm of agents.

* The severe epidemic of plague and famine in 1896 exercised a most depressing impact upon the industry for many years. The epidemic resulted into a flight of factory workers from the city who migrated to their native places due to the fear of death due to plague. There was thus an acute shortage of workers for a couple of years.

The total amount of paid-up capital of the Bombay cotton mills was Rs. 6.5 crores, besides loans and debentures which approximated to an equal amount in 1909. There was a good demand for their shares and financial position quite sound. The mill owners belonged to the Vani, Bhatia, Parsi, Muhammadan and Jew communities. In 1909 the Bombay cotton mills provided employment to about 98,000 workers, most of them were from the Konkan region. Some of the managers and skilled officers, such as weaving and spinning masters were Europeans, while the affairs of many mills were managed by Indians. Occasions of strikes were extremely rare. Hours of work and other conditions were governed under the Indian Factories Act XV of 1881 (as amended by Act XI of 1891).

Silk Mills : Prior to World War I there were two silk mills in Bombay. The Sassoon and Alliance Mill,* established in 1875 near Victoria Gardens was the largest mill in the Bombay Presidency manufacturing silk yarn and cloth for the Indian and Burma markets. It was a joint-stock concern with a capital investment of Rs. 10 lakhs. Its annual production was about 70,000 lbs. and provided employment to 490 workers in 1908-09.

The silk industry had to face competition from Japan. Raw material was mainly imported from China and Bengal. The chief fabrics were *saris*, skirts, headgear, satin goods, jackets, handkerchiefs, scarves and other dress lengths. Even gold thread was used for costly *saris* while printing in various colours and designs was also done in these mills.

Woollen Mills : The first woollen mill known as the Bombay Woollen Manufacturing Company was established in 1888 with a capital of Rs. 4 lakhs. It was followed by the Sohrab Woollen and Cotton Mill in the same year. It however shifted to manufacturing of only cotton goods. Prior to the World War I there were only two woollen mills in Bombay, one producing its own worsted yarn from Australian wool and wove woollen blankets etc., while another knitted jerseys and caps from imported worsted yarn.

Hosiery Industry : Hosiery was manufactured in five cotton mills, as well as in two separate hosiery factories. They together manufactured about 3,82,000 lbs. of hosiery goods per annum. The industry however was faced with keen competition from Japanese and European imports. The obsolete machinery was another handicap which halted growth.

Dyeing Industry : There were four dyeing factories in Bombay which dyed cotton yarn from local mills for export to various parts of India and Burma. They provided employment to a large number of workers, the Khatau Makanji Dye Works being the largest factory in Bombay.

* It was formerly known as Sassoon Silk Mill, but was then renamed due to amalgamation of Alliance Silk Mill in 1883.

Foundries and Metal Works : The history of foundries in Bombay can be traced to the year 1857 when the Byculla Iron Works and Metal Mart was established by Mr. N. C. Richardson. There ware 15 foundries in Bombay in 1909. They provided employment to nearly 5,900 operatives. Richardson and Cruddas was the largest engineering works in India, affording employment to 2,000 persons. It had two workshops, each containing foundries capable of dealing with the heaviest casting required in trade, patterns shops, smithshops, fitting and machine-shops and a large structural steel boiler department. It turned out steel and other work for the Indian Railways and roof trusses of various types for government offices. The products of this firm were sent to all parts of India, Burma, East Africa and the Straits Settlements.

There were six metal, cutlery and tin works in Bombay, the major among them being Asiatic Petroleum Oil Works, Burma Oil Works and the Godrej, Boyce & Co. The first two factories were mainly tin works while the third one was engaged in black-smithy, cutlery and safe making. The six factories provided employment to about 1,210 workers.

Engineering Workshops : There were nine engineering workshops in 1909 including the two workshops of the Great Indian Peninsula Railway and one of the Bombay, Baroda and Central India Railway. The rest of six workshops were owned by the Bombay Port Trust, Bombay Electric Supply & Tramway Co., Municipal Corporation, Bombay Steam Navigation Co., Bombay Electric Co., and Vulcan Works. The nine workshops provided employment to 13,533 workers.

The original locomotive works of the G.I.P. Railway were opened at Byculla about 1854. The workshop was however shifted to a spacious place to Parel in 1878 for expansion, where it is situated even to the present day. With further expansion of railway operations the carriage and wagon shops of the railways were shifted to Matunga by the end of the first decade of the century. The Matunga railway workshop has lived up to its reputation for renovation and even building up of special carriages even up to the present day (1982). The G.I.P. Railway Company's workshops employed more than 7,500 workers in 1909. They were mainly engaged in repair of carriages and wagons, and other railway accessories.

The Parel workshops of the B.B. & C.I. Railway were opened in 1868 after abandonment of the original works at Amroli. The Parel workshops provided employment to 4,062 workers in 1909. They were mainly engaged in repairing the railway company's rolling stock and in building carriages and wagons of every description. Locomotives were imported from England and fitted up in the workshops.*

* For details *see Gazetteer of Bombay City and Island*, Vol. I, 1909, pp. 502-04.

Paper Industry : The Girgaum Paper Mill, the oldest in India, was established in Bombay in 1862. It was also the only paper mill in Bombay. Its production was to the tune of 250 tons in 1908. It produced various classes of paper and employed about 50 hands. It however suffered from the competition of the Bengal and Poona Paper.

Gas Work : The Bombay Gas Company commenced the erection of its works in Parel (now in Lalbaug) in 1863. The gas light was introduced in 1866. The machinery was initially of a crude type, and there were no arrangements for purifying the gas. Originally the works contained two gas-holders with a capacity of 1,50,000 cubic feet apiece, and both telescopic with two lifts.

In 1892 a new holder was erected with a capacity of 2,40,000 cubic feet. The bulk of the coal used was Australian and Indian, with an occasional English consignment.

There were 700 public lamps in 1868 which increased to 4,000 in 1894. They were furnished with incandescent burners in 1894 instead of the former flat flame burners. The main pipe from the main works was 24 inches in diameter. The original gas pipes were of lead but were substituted by wrought iron pipes due to frequent damages. The mains were of cast iron with lead joints. The Bombay gas afforded not only the modernisation but also gave fillip to industrial growth in the city.

This was the stage of industrialisation of this great city of India on the eve of the First World War. Though it was not comparable to the state of industrialisation of the principal cities in England and Europe, Bombay laid the foundations of the future growth of industrialisation in India by providing a definite base, and by training technical personnel and skilled workers. The Bombay industry also encouraged the development of a class of entrepreneurs and a capital market which fostered the development not only of the city but also of the country as a whole.

It would therefore, be most pertinent to give a very brief account of the registered companies and their capital during the gestation period of industrial growth in Bombay. The following statement shows the number of registered companies in Bombay and their position of capital during the four decades ending 1905-06 and in 1908-09 :—

Year	No. of Companies	Nominal Capital in Lakhs of Rs.	Paid up Capital in Lakhs of Rs.	Average number of Companies registered annually
1875-76 ..	75	859	356	....
1885-86 ..	147	1028	802	14
1895-96 ..	191	1322	880	14
1905-06 ..	241	1889	1303	14
1908-09 ..	308	2940	1864	....

It would be evident from the above statement that the number of registered companies which was 75 in 1875-76 increased to 308 in 1908-09, thus recording an increase of slightly less than 320 per cent during the period of 33 years. It means that the number of companies increased by about 10 per cent per annum during this period. The greatest increase took place during the period of 10 years from 1875 to 1886 which was to the extent of 96 per cent. This was nothing but spectacular. Corresponding to the increase in companies during this period (320 per cent) the nominal capital increased by 243 per cent and the paid-up capital increased by 248 per cent *i.e.* virtually of the same order from 1886 onwards.

The distribution of these companies, industry-wise, at the close of the year 1908-09 was as under:—

Classification of companies	No. of companies	Nominal capital (Rs.)	Paid-up capital (Rs.)
1	2	3	4
(I) *Banking, Loans and Insurance* ..	18	4,84,05,000	1,38,51,703
(1) Banking and Loan	9	3,36,95,000	1,26,77,693
(2) Insurance	9	1,47,10,600	11,74,010
(II) *Trading*	97	7,01,84,000	4,59,30,746
(3) Navigation	4	1,27,50,000	78,72,338
(4) Railways and Tramways ..	9	2,46,00,000	1,87,76,198
(5) Co-operative Associations	2	3,50,000	91,940
(6) Printing, Publishing and Stationery	10	17,90,000	4,47,910
(7) Others	72	3,06,94,000	1,87,42,360
(III) *Mills and Presses*	169	13,63,04,625	10,77,15,596
(8) Cotton Mills	100	11,43,61,200	9,14,69,011
(9) Mills for Wool, Silk hemp, etc.,	6	47,25,000	46,37,000
(10) Cotton and Jute Screws and Presses	52	11,54,84,425	95,97,230
(11) Flour Mills	3	14,70,000	10,06,200
(12) Saw and Timber Mills ..	1	8,00,000	5,00,000
(13) Other Mills and Presses ..	7	34,00,000	5,06,155
(IV) *Tea and other Planting Companies* ..	1	50,000	38,950
(V) *Mining and Quarrying*	7	2,56,75,000	76,25,380
(14) Coal	1	3,00,000	2,03,240
(15) Others	6	2,53,75,000	74,22,140
(VI) *Land and Building*	8	1,22,80,000	1,01,81,635
(VII) *Ice Manufacturing*	2	9,77,600	7,06,075
(VIII) *Sugar Manufacture*	3	9,00,000	2,91,535
(IX) *Others*	3	1,00,000	96,000
Total ..	308	29,48,76,625	18,64,37,620

It would be evident from the above table that the largest number of companies were under the category of mills and presses accounting for about 55 per cent of the total number of companies, followed by trading

companies which constituted about 33 per cent of the total number of companies. The mills and presses accounted for slightly more than 44 per cent of the nominal capital and slightly more than 50 per cent of the paid-up capital. Trading companies followed the mills and presses in respect of nominal and paid-up capital.

The industrial growth which took place in the first decade of this century was very rapid as compared to the earlier period. That was why the late Justice M. G. Ranade was tempted to describe this industrial progress as industrial revolution. It was obviously the spirit of *Swadeshi* and awareness of the necessity of the economic growth of the country which promoted slowly this measure of industrial growth by the beginning of this century.

INDUSTRIAL GROWTH AFTER WORLD WAR I

Three factors contributed to speed up, even though slow in nature, the industrial growth of the country subsequent to the declaration and end of the First World War. These were political, economic and social.

Though the British Government was responsible for the introduction of the system of education, it did not provide enough employment opportunities to the educated people. They, therefore, began to examine the causes of the country's poverty and obviously held foreign rule responsible for economic backwardness. The victory of Japan over Russia further gave stimulus to the thought that if a small Asian power could defeat Russia, it should not be difficult for a country like India to achieve a position of eminence. The Government also wanted the co-operation of the rising capitalist class in India for the effective protection of the British rule. Moreover, the war thoroughly exposed the industrial backwardness of India. To appease the public opinion, the government declared "responsible Government" as an objective of political policy and industrialisation as an objective of its economic policy. With this aim in view, the Government appointed an Indian Munition Board. Its main task was to suggest suitable measures required for the effective handling of the war. The object of the appointment of the Industrial Commission was to explore the possibilities of development of industries in India. The Government accepted, as a token of this policy, the principle of fiscal autonomy convention, and subsequently appointed the Fiscal Commission to consider the ways and means of suggesting the type of protections to be given to Indian industries for their development. The Fiscal Commission recommended the policy of " discriminating protection ". As a result of the recommendations of the Fiscal Commission, the Tariff Board was appointed to consider the cases of award of protection to Indian industries. It was under the stimulus of protection that some measures

of industrialization took place. The Fiscal Commission did not take an integrated view of the entire industrial development of the country. It considered the case of each and every industry separately. However, whatever might be the limitations of the policy of protection, it did begin an era of industrial development in this country. The Bombay industry, in particular, was the greatest beneficiary of the policy of protection.

The commencement of First World War in 1914 had an adverse impact on the growth of new cotton mills in Bombay. The stoppage of machinery shipments from Lancashire to India created difficulties in mill industry in Bombay for many years, and even after restoration of peace in 1918 the high increase in the cost of land and building prevented the construction of new mills. However large extensions to existing plants and machinery were made during this period.* A number of private concerns were converted into joint-stock companies. This led to increase in the paid-up capital of many companies to a great extent.

An important event in the industrial sector of Bombay in 1915 was that the cotton mills commenced working with electric power supply from the Tata Hydro-Electric works which was registered in 1910. The boom period for Bombay mills started in 1918 which laid to extensions in existing mills in the next year. The year 1919 witnessed the formation of the Bombay European Textile Association by Europeans engaged in the management of the cotton textile mills in Bombay to protect their mutual interests and to advance prospects of the industry. The textile experts from Lancashire and other parts of Europe had been instrumental in educating Indians in spinning, weaving and finishing of cotton goods. The organisation promoted research work relating to the industry and protected the interest of the personnel.

The first trade union of textile workers in Bombay, *viz.* the *Girni Kamgar Sangh,* was established in 1919. A good deal of work in the interest of the working class was done by the Bombay Social Service League which came into existence at the inspiration of Mr. Gopal Krishna Gokhale. The League was managed with praiseworthy energy and ability by Mr. N. M. Joshi, a prominent member of the Servants of India Society. Till about 1920, the Social Service League was the pioneer of the interest and welfare of mill workers, and it carried on its work in many mills with the co-operation of the millowners.

The year 1920 was marked by strikes in the textile mills. The strikers enjoyed the sympathies of the leaders of national freedom movement. The incidence of strikes led to the appointment of a Labour Dispute

* S. M. Rutnagur, *Bombay Industries : Cotton Mills*, 1927.

Committee in Bombay in 1921. Prior to 1925, textile trade unions were not organised properly. They had hardly any sound basis. In 1925, there were five associations. The most important among them was the Bombay Textile Labour Union, while each of the remaining four was called the *Girni Kamgar Mahamandal.* The four *Mahamandals* were specified by their localities, *viz.,* Chinchpokli, Prabhadevi, Colaba and Gholapdeo. The Girni Kamgar Sangh (1919) which was brought to life in 1923 was renamed as Mahamandal. The formation of the Bombay Textile Labour Union in 1926 was an important event in the history of trade unionism in Bombay.

The regulation of cotton trade in the city was in the hands of many commercial associations until 1917. A single agency for control of trade was introduced by appointment of the Cotton Contracts Committee which was replaced by the Cotton Contracts Board. It was in 1922 that the East India Cotton Association was established after an enactment in the Bombay Legislative Council for the control of Cotton trade of Bombay. The New Cotton Exchange building was opened in December 1925 for proper handling of cotton trade. The institution of a Clearing House in 1918 was another important innovation which had done a lot of good for cotton trade and industry. It was organised on the model of the Liverpool Clearing House. The total amounts handled by the Bombay Clearing House were as under:—

Year	Rupees*	Year	Rupees*
1921-22	.. 12,98,94,566	1923-24	.. 9,16,95,270
1922-23	.. 7,69,37,399	1924-25	.. 3,18,59,196

The cotton market in Bombay was then the largest in Asia.

The Indian Factories Act was amended in 1922, while the Smoke Nuisance Committee was also appointed in the same year in Bombay.

The Bombay textile industry was in the grip of a depression in 1923 and there was a decline in profits. The speculative activities coupled with banking difficulties of mill Agents necessitated further changes in the mill Agencies. The constitution and management of mills in Bombay was much different in 1925 than the pre-war years. There was a trail of strikes in 1923, 1924 and 1925. The strike in cotton mills in Bombay in 1925 was the longest in history upto that year. These events led to the appointment of the Bonus Dispute Committee in 1923, and enactment of the Workmen's Compensation Act in 1925.

Separation of the Bombay Millowners' Association from the Bombay Chamber of Commerce in 1923 was also an important event in the city.

*S. M. Rutnagur, op. cit.

The Bombay Millowners' Mutual Insurance Association and the Indian Central Cotton Committee were established in 1923. Excise duty which hampered the interests of the Indian textile industry was repealed in 1925.

The most important events in Bombay industries in 1926-27 were the appointment of the Tariff Board to enquire into the causes of the depression in the Bombay cotton mill industry and the resolution of the Government of India on the report of the Tariff Board. The Board conducted an inquiry in Bombay and Ahmedabad as regards the causes of depression, the competition from Japan and England, the need for protection to cotton industry and the general condition of the industry. The depression was found to be more acute in Bombay than in other centres. The competition from Japan yarn had a depressing effect on the Bombay industry which lost a big market in China. The depreciation of the Japanese Exchange also stimulated exports from Japan to India which was a blow to the indigenous industry. The recommendations of the Board were however deemed to be meagre in regard to the ailments and problems of the industry which needed a more adequate measure of protection than recommended by the Board. The Conference of Millowners, held at Bombay on June 20, 1927 pointed out that the reasons advanced by Government for withholding protection were absolutely untenable and strongly urged for adequate protection to the Indian Textile industry.

The Government of India reconsidered its earlier decision in certain respects and granted some protection to the textile industry. While the plea for imposition of import duty on imports of piece-goods was rejected by the Government, the removal of the imports duty on machinery and materials of the industry as recommended by the Fiscal Commission was accepted. The latter measure was beneficial for the Bombay industry. This encouraged growth and buoyancy in the industry, which continued till 1938. The textile industry had a set-back for a short interval in 1939-40 during which some of the mills preferred to switch over to other avenues of production. Throughout the span of World War II, the cotton textile industry in Bombay experienced buoyancy which could mainly be attributed to the unprecedented demand for cloth in the domestic market as imports were virtually restricted to meet the necessities of the war. There was a huge demand from the British Government to meet the requirements of the British Army. In short, the World War provided an unprecedented impetus to the cotton textile industry of Bombay.

Another important industry which grew in Bombay after the First World War was the pharmaceutical industry. It received encouragement during the First World War due to a steep increase in demand and a virtual stoppage of imports. The cessation of the war sharpened the competition from imports which gave a blow to the infant industry. It was however after 1930 that many new medicinal preparations were

manufactured in Bombay, and the industry maintained a steady pace of growth upto the outbreak of the World War II. Many companies of British, German and American origin undertook production in Bombay. A number of new preparations came to be manufactured. The industry enjoyed an unprecedented boom during the war of 1939–45. The country became virtually self-sufficient in the production of vaccines and sera. It was by 1943 that the indigenous producers could meet about 70 per cent of the demand for medicines in the Indian market.

The outbreak of the Second World War encouraged the emergence of two very important industries in Bombay, *viz.* automobile manufacturing and machine tool production. Both of them are highly sophisticated and developed industries which gave a fillip to the growth of other ancillary industries. Till the beginning of the war all automobiles, parts thereof and machine tools were imported. During the war it was felt necessary to manufacture these vital products to meet the demands of civilians and the armed forces. The Government of India also encouraged the development of these industries by placing orders with Indian manufacturers and by inviting technical experts from England to guide the Indian entrepreneurs. Firms like Godrej and Boyce and others took benefit of this encouragement and undertook production with technical foreign collaboration. The emergence of the Premier Automobiles at Bombay in 1944 was an important event as it pioneered the growth of the automobile industry in Bombay. However the plans of the Indian manufacturers were mainly confined to assembling as imported products dominated the market upto the dawn of Independence.

The food products industry developed on an organised scale during the inter-war period. With 16 working factories in 1923, the industry made very rapid progress and had 90 factories in 1940 in Bombay. The controls and rationing of food articles during the war and post-war periods gave an impetus to this industry. This can further be elaborated by the fact that due to rationing and controls, the processed foods and canned articles were increasingly used as substitutes for wheat flour and rice. The development of the industry in Bombay during the war was also due to the conditions of boom created by the demand on account of the war and considerable supplies of processed foods. There was some decline in the industry after the cessation of hostilities. It is also noteworthy that although the number of factories increased from 1945 to 1950 by about 80 per cent, there was a decline in employment as also in the percentage share of this industry in the total factory employment in Bombay. This might be due to the post-war stagnation, a higher degree of mechanisation and labour saving methods of production. The resettlement of displaced persons from Pakistan after partition of India, in Bombay, the employment picture in this industry changed. The displaced persons,

popularly known as Sindhis, took up to this industry on a large scale and started many very small establishments in the city, but in larger numbers in the suburbs. Over a period of 35 years from 1923 to 1957, the number of factories increased seventeen times and employment by nine times.

The overwhelming importance of the manufacturing sector in the economy of Bombay has always remained a unique feature of the city. It is therefore necessary to study the changes in the number of factories, volume of factory employment, pattern of variations in factory employment, structure of factory employment and size of factories from 1923 to 1957, for which period the data is uniformly available.

It is however necessary to caution that a broad picture of the evolution of the organised employment can be obtained from 1934 to 1957, while the data prior to 1923 reveals a trend of development of factory employment. This is mainly because the factories were governed by the Factories Act of 1881 (as amended in 1891 and other years) before 1934. Upto that year the Factories Act was applicable to factories employing 20 or more persons and using power. The local authorities had however the discretion to extend the scope of the Act to cover factories employing 10 or more persons and working with or without power. This discretionary power does not, however, appear to have created much impression on the employment picture. In 1938, 287 factories covered under the discretionary powers of the local authorities employed only 5,065 persons as against the total of 881 factories providing employment to 2,40,511 workers.

The Factories Act of 1948 was made applicable to units employing 10 or more workers and using power and also to those employing 20 or more without using power. Even this extension in coverage of the Act made a difference of only 3,088 workers out of a total of 3,77,056 workers *i.e.* less than one per cent in 1949. The employment data over the entire period is therefore broadly comparable.*

As regards the individual industry groups, the classification adopted from 1950 onwards is different from that adopted during the previous years. Naturally the data relating to specific industry groups is incomparable. An attempt is made here to rearrange the data relating to some of the industries in earlier years and present the same in a comparable form with the prevailing classification.

It is noteworthy that the period of 35 years which is reviewed is characterised by events of great economic significance. The wild prosperity of the early twenties of this century, the Great Depression of 1929-30 which

* This analysis is based on the in-depth study of Bombay by Prof. D. T. Lakdawala, Prof. V. N. Kothari, Prof. Sandesara and Prof. P. A. Nair in *Work, Wages and Well-being in an Indian Metropolis*, 1963, University of Bombay.

had a world-wide impact, and the subsequent economic revival which characterised the period upto 1939 are all reflected in the employment figures. Then ensued the fateful Second World War and the subsequent boom, and the period of economic planning after Indian Independence.

(I) NUMBER OF FACTORIES

The number of working factories and the factory employment during the period 1923–57 are given in Table No. 1. The number of factories increased from 324 in 1923 to 3,400 in 1957. This meant an increase of more than ten times, which can be rated as an impressive growth in the economy of the city. Except for short-lived abberrations in some years such as, 1927, 1931, 1932, 1946, 1953 and 1954, the rise in number was continuous. Attention may however be drawn to the almost continued increase in the number of factories during 1928–36, when the level of employment was throughout lower than that prevailing in any previous year. Employment provided by factories suffered a decline from 2,10,215 in 1927 to 1,81,265 in 1928 which meant a fall by about 13·8 per cent. This was however accompanied by an increase in the number of factories from 384 in 1927 to 404 in 1928. The Factory employment reached the lowest level of 1,56,914 in 1933 which was lower by about 18·5 per cent as compared to the previous year. Even this decline in employment was accompanied by a rise in the number of factories from 411 to 425. The number of factories in Bombay increased from 472 in 1935 to 515 in 1936, although total employment actually fell from 1,95,696 to 1,87,869. Usually the periods of decline are characterised by decline in employment, particularly in unprofitable concerns. The paradoxical situation however was that employment declined while number of factories increased. The paradox could be explained by the fall in employment in the cotton textile mills in the face of increase in the number of factories in other industries. Actually the employment in cotton textiles declined by 17·3 per cent as compared to only 4.3 per cent in other industries. The employment provided by cotton mills in 1933 was lower by about a quarter as compared to that in 1932. The other industries were however able to maintain a *status quo* in employment.

The employment in textile factories dwindled by 4·9 per cent in 1936 over that in 1935. The corresponding fall in other industries was very small, *viz.* 1·6 per cent. The intensity of fall in the textile and non-textile industries was thus very difierent in Bombay. The fact however remains that there was a decline in the non-textile factories during 1928-36 over that in 1926-27. The number of units in the non-textile sector which was 293 in 1927 increased to 310 in 1928 and to 414 in 1936. Thus the paradox of rise in number of factories in the face of decline in employment still remains to be explained.

TABLE No. 1

WORKING FACTORIES AND FACTORY EMPLOYMENT IN GREATER BOMBAY BY SELECTED INDUSTRY GROUPS, 1923–1957

Year		Textile Industries		Metal and Engineering Industries		Printing, Publishing and Allied Industries		Chemical and Chemical products		Food Industries Except Beverages		All Industries		
		No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	Index of Employment 1923=100
(1)		(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1923	..	92	1,52,488 (75.0)	92	30,204 (14.8)	35	5,115 (2.5)	9	759 (0.4)	16	1,021 (0.5)	324	2,03,418	100
1924	..	92	1,53,069 (75.2)	91	27,237 (13.4)	47	6,117 (3.0)	17	3,123 (1.5)	22	1,393 (0.7)	361	2,03,641	100
1925	..	93	1,54,364 (74.2)	102	32,861 (15.8)	58	5,866 (2.8)	20	5,471 (2.6)	29	1,489 (0.7)	387	2,07,998	102
1926	..	92	1,54,784 (72.8)	104	33,676 (15.8)	59	5,802 (2.7)	21	6,580 (3.1)	29	1,643 (0.8)	393	2,12,571	104
1927	..	91	1,53,531 (73.0)	97	32,438 (15.4)	55	5,734 (2.7)	19	6,660 (3.2)	27	1,828 (0.9)	384	2,102,15	103

TABLE No. 1—*contd.*

Year	Textile Industries		Metal and Engineering Industries		Printing, Publishing and Allied Industries		Chemical and Chemical products		Food Industries Except Beverages		All Industries		
	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	Index of Employment 1923=100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1928 ..	91	1,27,003 (70.1)	101	30,516 (16.8)	59	6,047 (3.3)	22	6,129 (3.4)	26	1,996 (1.1)	401	1,81,265	89
1929 ..	89	1,26,632 (69.9)	111	30,818 (17.0)	55	5,783 (3.2)	21	6,235 (3.4)	27	1,831 (1.0)	404	1,81,109	89
1930 ..	89	1,34,482 (72.7)	112	26,444 (14.3)	58	5,531 (3.0)	22	6,289 (3.4)	29	1,957 (1.1)	419	1,85,064	91
1931 ..	86	1,31,700 (73.9)	108	23,617 (13.3)	59	5,632 (3.2)	20	4,879 (2.7)	29	1,801 (1.0)	411	1,78,106	88
1932 ..	85	1,47,180 (76.5)	103	21,789 (11.3)	58	5,614 (2.9)	22	5,151 (2.7)	30	1,926 (1.0)	411	1,92,418	95
1933 ..	88	1,11,667 (71.2)	117	22,342 (14.2)	60	5,681 (3.6)	23	4,848 (3.1)	29	1,756 (1.1)	425	1,56,914	77

1934	..	82	1,16,723 (70.4)	122	23,763 (14.3)	61	6,246 (3.8)	28	5,969 (3.6)	31	1,892 (1.1)	432	1,65,863	82
1935	..	94	1,41,913 (72.5)	132	25,130 (12.8)	62	6,297 (3.2)	30	6,464 (3.3)	33	2,192 (1.1)	472	1,95,696	96
1936	..	101	1,34,945 (71.8)	148	25,102 (13.4)	72	6,528 (3.5)	30	5,163 (2.7)	31	2,014 (1.1)	515	1,87,869	92
1937	..	107	1,57,260 (73.3)	175	26,014 (12.1)	86	7,129 (3.3)	31	3,426 (1.6)	31	2,731 (1.3)	585	2,14,406	105
1938	..	136	1,76,723 (73.5)	267	29,096 (12.1)	183	8,603 (3.6)	29	4,097 (1.7)	82	3,822 (1.6)	881	2,40,511	118
1939	..	130	1,54,197 (69.7)	277	30,672 (13.9)	197	8,660 (3.9)	29	3,292 (1.5)	84	4,356 (2.0)	939 (1)	2,21,376	109
1940	..	136	1,53,264 (66.8)	298	30,089 (13.1)	193	8,464 (3.7)	36	3,535 (1.5)	90	4,410 (1.9)	998 (4)	2,29,267	113
1941	..	145	2,04,307 (65.1)	329	46,780 (14.9)	194	8,833 (2.8)	46	4,505 (1.4)	73	6,031 (1.9)	1,010 (8)	3,14,045	154
1942	..	139	2,02,785 (60.2)	362	59,650 (17.7)	196	8,698 (2.6)	51	5,164 (1.5)	95	7,175 (2.1)	1,147 (7)	3,36,975	166
1943	..	153	2,21,752 (59.1)	394	75,224 (20.0)	185	9,237 (2.5)	63	6,782 (1.8)	94	8,006 (2.1)	1,251 (1)	3,75,502	185

TABLE No. 1—*concld.*

Year	Textile Industries		Metal and Engineering Industries		Printing, Publishing and Allied Industries		Chemical and Chemical products		Food Industries Except Beverages		All Industries		
	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	No. of working factories	Employment in reporting factories	Index of Employment 1923=100
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1944 ..	165	2,24,308 (57.2)	434	77,852 (19.8)	198	9,393 (2.4)	68	7,606 (2.0)	97	8,492 (2.2)	1,387 (7)	3,92,453	193
1945 ..	175	2,25,222 (57.6)	465	77,220 (19.7)	207	10,156 (2.6)	75	57,61 (1.9)	99	9,115 (2.3)	1,481 (1)	3,91,081	192
1946 ..	184	2,14,586 (59.8)	477	64,040 (17.9)	210	10,697 (3.0)	75	7,510 (2.1)	94	8,340 (2.3)	1,475 (6)	3,58,658	176
1947 ..	192	2,19,244 (61.0)	489	68,082 (18.9)	223	12,147 (3.4)	72	8,123 (2.3)	108	7,403 (2.1)	1,502 (9)	3,59,380	177
1948 ..	215	2,29,594 (60.7)	573	72,025 (19.0)	250	12,771 (3.4)	104	8,366 (2.2)	115	8,034 (2.1)	1,811 (9)	3,78,440	186
1949 ..	274	2,24,378 (59.5)	743	73,903 (19.6)	321	13,935 (3.7)	152	12,429 (3.3)	173	9,249 (2.5)	2,309 (10)	3,77,056	185

1950	..	439	2,27,332	799	78,693	285	13,253	146	11,465	184	8,033	2,356	3,76,072	185
		(55)	(60.4)	(91)	(20.9)	(37)	(3.5)	(16)	(3.0)	(33)	(2.1)	(327)		
1951	..	427	2,34,818	802	73,031	285	13,970	176	13,467	199	8,194	2,532	3,84,840	189
		(68)	(61.0)	(110)	(19.0)	(53)	(3.6)	(20)	(3.5)	(35)	(2.1)	(431)		
1952	..	435	2,32,621	804	70,443	294	14,025	178	12,460	199	8,721	2,571	3,77,460	186
		(92)	(61.6)	(155)	(18.7)	(54)	(3.7)	(20)	(3.3)	(34)	(2.3)	(527)		
1953	..	368	2,33,533	770	64,072	269	12,959	161	13,129	173	7,758	2,231	3,66,936	180
		(169)	(63.6)	(229)	(17.5)	(63)	(3.5)	(30)	(3.6)	(68)	(2.1)	(795)		
1954	..	430	2,35,052	784	72,337	299	13,814	184	13,216	215	8,208	2,561	3,78,055	186
		(70)	(62.2)	(95)	(19.1)	(25)	(3.7)	(16)	(3.5)	(28)	(2.2)	(353)		
1955	..	464	2,50,197	845	80,041	307	14,594	191	14,275	233	8,798	2,751	4,11,395	202
		(72)	(60.8)	(87)	(19.5)	(23)	(3.5)	(18)	(3.5)	(42)	(2.1)	(358)		
1956	..	473	2,46,950	869	86,025	315	15,051	190	14,936	273	9,913	2,905	4,20,991	207
		(73)	(58.7)	(79)	(20.4)	(27)	(3.6)	(10)	(3.5)	(30)	(2.4)	(323)		
1957	..	458	2,43,645	919	91,405	317	14,739	195	15,855	275	9,997	2,960	4,24,706	209
		(88)	(57.4)	(115)	(21.5)	(40)	(3.5)	(15)	(3.7)	(34)	(2.4)	(440)		

Notes.—(1) Figures in brackets in column Nos. 2, 4, 6, 8, 10 and 12 refer to non-reporting factories. The total of reporting and non-reporting factories will give the total number of working factories. For the years 1950 onwards information in regard to closed factories is also available. The number of closed factories was as follows : 1950–68; 1951–45; 1952–103; 1953–19; 1954–185; 1955–173; 1956–68; 1957–138. By adding the number of working factories to the number of closed factories, we can arrive at the number of registered factories.

(2) Figures in brackets in column Nos. 3, 5, 7, 9 and 11 refer to the percentage of employment in each industry to total factory employment in each year.

It is noteworthy that the policy of discriminating protection might have changed the condition of several industries. Excluding the employment in government and semi-government factories, railway workshops, gas production, electricity generation, etc., which were mainly public utilities, we find that in the residual non-textile industrial sector, there was actually an increase in employment from 29,438 in 1927 to 30,385 in 1929, to 33,071 in 1934, and to 35,913 in 1935, with a nominal decline in 1936. The level of employment was at its lowest in 1931. Thus, the period 1927-30 was one of comparative stagnation in the residual non-textile industries. The year 1931 was however the worst. There was some revival in 1932. The employment position was static in 1933 though the number of non-textile factories increased to 302. From 1934, the employment in residual non-textile industrial sector revived rapidly, *viz.* 33,071 in 1934 to 35,913 in 1935 with a corresponding rise in factories from 315 to 342, respectively. The number of units in this sector increased by 35, though the employment therein fell by 718. The year 1937 witnessed a growth in employment to 38,479 accompanied by rise in number of factories to 438. "It will thus be observed that the overall employment figures conceal the divergent changes that were occurring in various industries. The increase in the number of units in the face of an overall decline in employment was really in response to mildly expansionary tendencies prevailing in certain industrial sectors of the city."*

(II) VOLUME OF FACTORY EMPLOYMENT

Factory employment registered a growth of more than 100 per cent over the period of 35 years from 1923 to 1957. It rose from 2,03,418 in 1923 to 4,24,706 in 1957. Besides 20,089 workers were estimated to be employed in the non-reporting factories in 1957. Thus actual factory employment was 4,44,795 in 1957 which meant an increase by 118.7 per cent over that in 1923. It is however noteworthy that since the level of employment was at its peak during the war, the level of employment in 1957 was higher by only 13.3 per cent over that in 1944.

The period of 1923-37 was characterised by conditions of near-stagnation in the Bombay industries. There was a nominal increase in employment in 1926. The index of employment in 1926 stood at 104 with 1923 as the base year. It was from 1927 that industrial employment suffered a decline which was at its bottom in 1933. The index slumped down to 89 in 1928 without any change in 1929. There was some revival in 1930 which was short-lived. The index which had touched the 88 mark in 1931 registered another revival to 95 in 1932. The level of employment was the lowest in 1933 with the index number falling to 77 and actual employment falling by 46,504 over that in 1923. Though the fall in employment was

*D. T. Lakadawala, op. cit., p. 624.

not uniform in all the industries, the cotton textile industry was the worst hit. The variations in the general index were highly sensitive to the cotton textile industry as it provided the largest size of employment as compared to other industries.

There was marked improvement in the employment situation in 1934 and 1935, the index rising to 95 in 1935. It slumped to 92 in 1936. Thus, during the period 1927-36 the level could never rise over the 1926 level. The year 1937 witnessed a rise to 105 which reached the high mark of 118 in 1938. There was however a fall to 109 in 1939. The upheavals in employment were directly related to those in employment in cotton textile.

The Great World War accelerated the growth of employment and the insteadiness in the earlier period was converted into a consistently rising trend. The index of employment which was 113 in 1940 rose steeply to 154 in 1941. This was definitely the highest rate of growth during the period of 35 years under study. In absolute terms, employment rose by 84,778 in 1941 over that in 1940, which meant an escalation by 36.7 per cent in a single year. The upward trend continued till 1944 when the index attained the peak level of 193. It remained unsurpassed for many years to come. Factory employment stood at 3,92,453 in 1944 which was higher by 78,408 or 25 per cent as compared to the level in 1941. Thus, employment in Bombay increased at the rate of about 40,000 per annum over the four year period of 1941 to 1944. There was a very small decrease in the index (192) in 1945, the subsequent year recorded a sudden slump in the index to 176. In absolute terms, employment slumped by 33,795 in 1946 over that in 1944. The situation was almost similar in 1947. This stagnation in industry and employment was a natural corrollary of the cessation of the war. There was a sudden collapse in the cotton textile industry in 1946, which threw about 11,000 workers out of employment therein, while the number of mills was reduced by nine.

The index numbers of factory employment in 1948 and 1949 increased to 186 and 185, respectively. Employment in reporting factories was 3,76,072 in 1950 which was higher by 1,46,805 or 64 per cent as compared to 1940. The tremendous increase in the population of Bombay during the decade 1941-51, *viz.* from 16,95,168 to 28,39,270, is attributable to the increase in migration of workers to Bombay in search of employment.

The employment picture in the period 1950-53 lacks in clarity because a larger number of factories did not furnish reports. The situation from 1955 to 1957 can be assessed better because the Chief Inspector of Factories prepared estimates of probable employment in the non-responding factories from 1954 onwards. On the basis of the estimates of the Chief Inspector of Factories for the years 1954 to 1957, the employment in

non-responding factories has been computed for the entire period of 1950-57, as under[1]:—

Employment in Factories in Bombay, 1950–57

Year	Employment in reporting factories	Estimated employment in non-reporting factories	Total	Index of employment 1923=100	Index of employment 1950=100
1	2	3	4	5	6
1950 ..	3,76,072	12,753	3,88,825	191	100
1951 ..	3,84,840	16,809	4,01,649	197	103
1952 ..	3,77,460	20,553	3,98,013	196	102
1953 ..	3,66,936	31,005	3,97,941	196	102
1954 ..	3,78,055	16,758	3,94,813	196	102
1955 ..	4,11,395	11,785	4,23,180	208	109
1956 ..	4,20,991	8,656	4,29,647	211	110
1957 ..	4,24,706	20,089	4,44,795	219	114

It is evident from the above statistics that the index number of employment surpassed the 1944 level only in 1951. It however declined by one count and remained stable in 1952 to 1954. In 1955, it gained a height of 208, and further rose to 211 in 1956 and to 219 in 1957. However the rate of growth in the period 1950 to 1957 though impressive, compared rather unfavourably with that during 1940-50. It should be admitted that the acceleration in employment during the war period was an uncommon phenomenon. The growth in employment from 1954 to 1957 was characterised by consistency and steadiness.

(III) PATTERN OF VARIATION IN FACTORY EMPLOYMENT IN BOMBAY, 1923–57

The statistics of variations in employment in textile industries; metal and engineering industries; printing, publishing and allied industries; chemicals and chemical products; food industries and total factory employment in Bombay furnished earlier in this chapter are self-evident. It is however of great interest to furnish some remarks on three broad periods, namely, the war-time expansion, the post-war decline and the period from 1953 to 1957.

As stated earlier, the factory employment in Bombay increased by 84,778 in 1941. The share of the textile industry was as much as 51,043

[1] D. T. Lakadawala, op.cit.

in this increase, while employment in other industries increased by about 33,000 *i.e.* from 76,003 in 1940 to 1,09,738 in 1941. Thus, while the textile industry registered an increase of 33 per cent, the non-textile sector expanded by 44 per cent. Factory employment increased further by 78,408 during 1942-44. The contribution of the textile industry to this increase was only 20,001, while the employment in the non-textile sector increased by 58,407. This represents a growth of 53 per cent in 1942-44 period over that in 1941. Employment in the non-textile industries thus increased from about 67,000 in 1939 to 1,68,000 in 1944. It appears that the metal and engineering industries exhibited rapid growth in this period, which is evident from the fact that employment therein increased from 30,672 in 1939 to 77,852 in 1944. This was really an impressive rate of growth from any standards. Although the impetus of growth on account of war-time boom ceased in 1945, the metal and engineering industries had firmly established themselves as one of the major industrial sectors in Bombay. The employment provided in the chemical industrial sector which was still in its infancy increased from 3,292 in 1939 to 7,706 in 1944. The factories engaged in army clothing the ordnance factories and the dock-yards, which were defence oriented industries, also registered substantial advance. In fact, the industries in other sectors also contributed to the expansionary phase.

In the nature of things, there was a sudden recession in factory employment, by 32,423, in 1946 which could be attributed to the stagnation after the war. The stagnation was more marked in the metal and engineering industries as the employment therein receded by 13,180. The fall in employment in cotton mills was comparatively less severe, *viz.* by 10,636. The recession in the metal and engineering sector continued till 1949. In 1950, there was a short-lived revival and the size of employment therein exceeded the 1944 level. But it was followed by a relapse, and it was only in 1955 that employment exceeded the 1944 and 1950 level. This sector of industries has been steadily progressing since then.

The third period from 1953 to 1957 witnessed fluctuations in the textile industry which was frought with inherent problems due to lack of modernisation and replacement of machinery. The chemical industries showed a slowly rising trend, while employment in metal and engineering advanced from 72,000 in 1954 to 91,000 in 1957.

(IV) STRUCTURE OF FACTORY EMPLOYMENT, 1923–57

The constraints of changes in classification of industries from time to time make it rather difficult to compare the structure of employment in one period with that in another. A broad comparison is however possible by rearranging the data relating to earlier years from some of the industries with the 1950 classification. The comparative data from 1923 to 1957 for

the five major groups of industries in Bombay, namely, textile industries, metal and engineering industries, printing and publishing industries, chemical and chemical products, and food industries, except beverages, are furnished in Table No. 1.

These five groups of industries which accounted for 93.2 per cent of total factory employment in 1923, employed about 88.5 per cent of factory workers in 1957. It can be deduced that the miscellaneous industries progressed more during the period.

The textile industry continued to be the largest single industrial sector throughout the period under review. It however tended to decline in importance; though Bombay is still regarded as the home of the cotton textile industry. It provided employment to about 75 per cent of the industrial labour in 1923, which percentage declined to 70 per cent in 1939, to 60 per cent in 1946 and to about 57.4 per cent in 1957. It is interesting to note that though it enjoyed buoyancy during the war period, its share in the industrial employment in Bombay declined during the same period.

The importance of the other groups of industries increased relatively, the principal recipient being the group of metal and engineering which provided employment to 21.5 per cent of the industrial labour in 1957 as against 14.8 per cent in 1923. "Their rise was principally a war and post-war phenomenon." Its share in industrial employment was 19.8 per cent in 1944, and though the cessation of war gave it a blow, it progressed in subsequent years. It accounted for more than 21·5 per cent of the industrial employment and ranked the second largest industrial sector in 1957 in Bombay.

The printing and publishing industry employed 3.5 per cent of the workers in 1957 as against 2.5 per cent in 1933. The growth of this industry in terms of percentage growth in employment, *viz.* by one per cent, over a period of 35 years is by no means impressive. Chemicals and chemical products showed much greater progress. The food industries except beverages improved their position from less than one per cent at the beginning of the period to 2.4 per cent in 1957. "It may be concluded that the old established industries such as textiles were relatively declining while the non-textile industries in general were growing in importance."*

(V) SIZE OF FACTORIES

The average size of a factory as per the employment criterion is an important aspect in the study of industries. As per this criterion, every factory provided employment to 143 persons on an average in Bombay in 1957. A factory in the metal and engineering industry provided

* D. T. Lakadawala, op. cit., p. 634.

employment to 100 persons on an average. The changes in th epattern in this respect from 1951 to 1957 are given below:—

Size of Reporting Factories and Employment in them, 1951 and 1957

Size-Group	1951 Reporting Factories		1957 Reporting Factories	
	No.	Employment	No.	Employment
1	2	3	4	5
Less than 10	307 (12.1)	2,082 (0.5)	306 (10.3)	2,324 (0.5)
10-19	713 (28.2)	10,058 (2.6)	957 (32.3)	13,358 (3.1)
20-49	707 (27.9)	22,272 (5.8)	872 (29.5)	27,799 (6.5)
50-99	361 (14.3)	24,139 (6.3)	363 (12.3)	25,146 (5.9)
100-499	319 (12.6)	63,571 (16.5)	347 (11.7)	72,978 (17.2)
500-999	57 (2.3)	52,231 (13.6)	34 (1.1)	24,186 (5.7)
1,000-4,999	61 (2.4)	1,67,557 (43.5)	70 (2.4)	1,82,462 (43.0)
5,000 and above	7 (0.3)	42,930 (11.2)	11 (0.4)	76,453 (18.0)
Total ..	2,532 (100.0)	3,84,840 (100.0)	2,960 (100.0)	4,24,706 (100.0)

It is evident from the above statistics that the proportion of small-sized factories (i.e. those employing less than 100 persons) had remained almost unchanged, with a marginal increase from 82.5 per cent in 1951 to 84.4 per cent in 1957. The proportion of medium-sized factories (employing 100 to 999 workers) declined from 14.9 per cent to 12.8 per cent. The proportion of large-sized factories employing 1,000 and above remained unchanged. It must however be noted that the proportion of employment in large-sized factories increased from 54.7 per cent in 1951 to 61 per cent in 1957. This increase was at the cost of the medium-sized factories wherein the proportion of employment declined from 30.1 per cent to 22.9 per cent.

Besides the factories registered under the Factories Act, there was a considerable number of small units which were registered under the Bombay Shops and Establishments Act. A large proportion of these units were engaged either in production of consumer goods and ancillary parts required by factories. In the nature of things, this was essentially a self-employing sector and the average size of the unit was rather small.

WARD-WISE DISTRIBUTION OF FACTORIES AND EMPLOYMENT

Location of industries in a metropolis like Bombay is an important aspect in the study of industrial development and related problems of the city. The pattern of location of industries in Bombay is very defective. The city appears to be the result of blind growth with no control on the location of industry in the past. Consequently it is found that in predominantly residential areas about one-fourth of the buildings are of non-residential type.[1] The location of the industrial zone in the centre of the city has proved to be highly undesirable. The most important residential areas of the city are situated immediately to the north and south of the industrial quarter. Since the predominant character of the wind in Bombay is north-north-east and south-south west-west, the smokes, fumes and vapours emanating from these industries tend to exert a deleterous effect on the health of the residents on either sides.[2]

There has been a wide realization that the haphazard growth of this city has to be stopped and that a strategy of scientific town planning has to be launched. The gravity of the situation demands a purposeful strategy for relieving the congestion and prevention of further haphazard growth. It is therefore of great interest to study the existing pattern of ward-wise location of factories and to measure the degree of concentration of industries in various wards. With this purpose in view, we have based our narrative of ward-wise distribution of factories on the study by the Bombay University School of Economics.[3] This is quite an indepth study and there is no parallel to it, particularly for the period covered by it (1956). The ward-wise distribution of factories and employment were worked out on the basis of addresses of factories as in the registers of the Chief Inspector of Factories in the year 1956. The classification of wards was as under:—

Ward		Areas
A	..	Colaba, Fort, Esplanade.
B	..	Mandvi, Chakla, Umbarkhadi, Dongri.
C	..	Khara Talao, Kumbharwada, Bhuleshwar, Crawford Market, Dhobi Talao, Fanaswadi.
D	..	Khetwadi, Girgaum, Chowpati, Walkeshwar, Mahalaxmi.
E	..	Tardeo, Mazagaon, Tarwadi, Nagpada, Kamathipura, Byculla.
F	..	Parel, Sewri, Naigaum, Matunga, Sion.
G	..	Dadar, Mahim, Prabhadevi, Worli, Chinchpokli, Love Grove.

[1] C. Rajagopalan, op. cit.
[2] Ibid.
[3] D. T. Lakadawala, op. cit.

Ward-wise Distribution of Factories and Factory Employment, 1956

Ward	No. of Factories	Employment
A	211	14,750
	(6.5)	(3.4)
B	162	6,634
	(5.0)	(1.6)
C	231	4,591
	(7.2)	(1.1)
D	489	23,016
	(15.2)	(5.4)
E	656	91,548
	(20.4)	(21.3)
F	326	1,00,994
	(10.1)	(23.4)
G	408	1,27,289
	(12.7)	(29.6)
Suburbs ..	745	60,825
	(23.0)	(14.2)
Grand Total ..	3,228	4,29,647
	(100)	(100)

[Figures in brackets indicate percentages.]

The data refer to the working factories i.e. reporting as well as non-reporting factories. Employment data are inclusive of estimated employment in non-reporting factories.

(I) NUMBER OF FACTORIES

Of the 3,228 working factories in Bombay, 2,483 or about 77 per cent were distributed in the seven wards of the city and island and 745 or 23 per cent were located in the suburbs. The highest concentration of the factories in the city area was in the E ward where 656 or 20.4 per cent of the total factories were localised. F and G wards housed 326 and 408 factories or 10.1 and 12.7 per cent of the factories, respectively. Factories did not find a congenial home in A, B and C wards. Of these A ward housed mainly offices of government and commercial firms and banks, while B and C wards had a number of shops and establishments. These three wards accounted for only 18.7 per cent of the factories. The average size of a factory in A, B and C wards was much smaller as compared to

E, F and G wards. Thus in A, B and C wards the factories were not only fewer but also smaller. This is attributable to the fact that these wards are typically office, shop and commercial areas where the industrial units found it extremely difficult to obtain the required space at competitive rates. The chief industrial centres of Bombay were the D, E, F and G wards where as many as 1879 factories were concentrated. They accounted for about 60 per cent of the factories in Bombay. Among these wards, the highest concentration of industries was in E ward with 656 factories.

" This overall pattern of location held true for almost all industries, taken individually. Conspicuous exceptions were however provided by the tobacco, rubber and rubber products, non-metallic mineral products and cinema studios, where more than half of whose units were located in the suburbs. Printing, publishing and allied industries were another exception. About 60 per cent of the units in this group were equally distributed between A and D wards. Of 211 factories situated in A ward, as many as 104 or nearly half of the factories were printing, publishing and allied industrial units. Thus the typical industry of A ward was printing, publishing, etc. This different pattern of concentration of the printing and publishing industry may be explained largely by the fact that proximity to offices and trading concerns which are its chief customers is an important factor in the locational pattern of this industry and that many important offices and trading concerns were mainly located in A ward. Units engaged in leather and leather products and the products of petroleum and coal were mostly located in F ward. The miscellaneous industrial units were fairly well distributed among the various wards of the city, but showed a good deal of concentration in the suburbs where 35.5 per cent of the units were situated. Suburbs also claimed a fair share of the textile units amounting to 32.6 per cent or 178 of the total 546 textile factories. Lastly, we may draw attention to an almost complete absence (in 1956) of gins and presses, footwear and other wearing apparel group of industries, printing presses, leather and leather products industries and laundries in the suburbs. This then is the broad pattern of distribution of industrial units in Greater Bombay. However, in order to obtain the true picture of concentration, it is necessary to examine the distribution of factory employment as between various areas."[1]

(II) FACTORY EMPLOYMENT

It can be observed that the pattern of distribution of employment differed from that of the factories. The areas of concentration of factories were not necessarily the areas of concentration of employment and *vice versa*. The lack of co-relation between the distribution of factories and employment will necessitate a rather detailed study of the size of factories

[1] D. T. Lakadawala, op. cit.

in various areas of Bombay which will be taken up subsequently. The broad features of the distribution of employment reveal some interesting facts. The suburbs which were not highly industrialized in 1956 as they are today, had 23 per cent of the factories providing employment to 60,825 or 14 per cent of the total factory employment in Bombay (*viz.* 4,29,647). It is evident from this fact that the factories in the suburbs must be comparatively small in size. The suburbs housed mainly factories engaged in the manufacture of chemicals and chemical products, small textile units, basic metal industries and miscellaneous industries. Most of these units were established either during or after the World War II. Of the industries in the suburbs, the textile units provided employment to 17,382 workers, which were followed by transport. the equipment manufacturing factories with 6,753 workers; non-metallic mineral products units employing 5,808 workers; metal products (except machinery) units with 4,721 workers and machinery units with 4,596 workers in 1956. The other factories in the suburbs were very small in size.

In the city island, the largest proportion of factory employment was found in the G ward where as many as 1,27,000 or 29.6 per cent of the factory workers were employed. It may be recalled that only 12.7 per cent of the factories were located in the G ward. It is thus obvious that the factories in G ward were of a larger size. This is attributable to the fact that this ward comprising Dadar, Mahim, Prabhadevi, Worli, Chinchpokli and Love Grove housed a large number of cotton textile mills which employ a large number of workers. The 111 textile units in this ward provided employment to 1,00,535 workers. The textile units were followed by those engaged in manufacture of transport equipment, which were 12 in number employing 7,872 workers. The higher proportion of employment per factory in the G ward was attributable mainly to the preponderance of cotton textile mills and transport equipment factories. It is clarified that the development of drugs and pharmaceutical factories in this ward was mainly in the years subsequent to 1956.

In regard to the magnitude and the proportion of factory employment therein, the E and F wards were also important centres of industrial activity. The E ward comprising Tardeo, Mazagaon, Tarwadi, Nagpada, Kamathipura and Byculla housed 656 or 20.4 per cent of the factories in Bombay. They provided employment to 91,548 or 21.3 per cent of the factory workers in Bombay. This ward had 115 textile factories employing 59,601 workers. It was the textile sector which immensely contributed to the importance of this ward as a centre of industry. The textile sector was followed by 13 factories of transport equipment which provided employment to 6,260 workers.

As between the E and F wards, the F ward exhibited a higher degree of industrialization in regard to factory employment, though not in

regard to number of factories. The F ward comprising Parel, Sewri, Naigaum, Matunga and Sion had 326 or 10.1 per cent of the total number of factories which provided employment to 1,00,994 or 23.4 per cent of total factory workers. Besides being a highly industrialized ward, the average size of factories in these localities was higher than that in E ward, and almost equal to that in G ward. The average employment per factory in F and G wards was to the extent of 311. The higher percentage of employment in F and G wards was mainly due to the preponderance of cotton textile mills in these areas. The F ward contained 46 textile units which provided employment to 61,535 workers. It is obvious that the textile units were large sized ones. They were followed by factories manufacturing transport equipment which, though six in number, employed 12,358 workers.

The highest concentration of industries was in E, F and G wards which accounted for nearly 75 per cent of the total factory employment, though they had only 43 per cent of the total number of factories. These areas provided a congenial home to 1,380 factories providing employment to 3,19,831 workers. Thus, 3,19,831 workers of the total factory workers in Greater Bombay (4,29,647), were in the industries in these three wards.

A, B, C and D wards were comparatively unimportant adding only 11.5 per cent of the total. Among these four wards D ward was slightly important as it accounted for only 5 per cent of the total factory employment, although 15 per cent of the factories were located in that area. Almost all the industries were fairly well represented in D ward. There was, thus, a lack of correspondence between the proportion of factories and employment. This was still more striking in case of C ward, where 7.2 per cent of the factories accounted for the insignificant proportion of total employment amounting to only 1.1 per cent.

It is noteworthy that the overall pattern of distribution of factory employment was affected by the location of the textile mills which accounted for 58 per cent of the total employment. A remarkable feature of the study of location of industries in Bombay is the heavy concentration of textile employment in E, F and G wards which accounted for nearly 90 per cent of the textile employment in 1956. G ward alone accounted for 40 per cent of the textile employment. It was mainly a textile area as nearly 80 per cent of the factory workers employed therein were working in textile factories. Industries other than textiles showed a much less concentration, although even therein E, F and G wards accounted for slightly more than 50 per cent of the employment. The suburbs had nearly 25 per cent of the employment in non-textile industries.

In E, F and G wards a majority of the workers were employed in textile industries, while in the other areas of the city a majority of the

workers were employed in non-textile industries. The share of textile employment in A, B and C wards was insignificant. It may therefore be concluded, " that the disproportion between the distribution of factories and factory employment as between various areas which we noted earlier must be the consequence of distribution of textile industries which are essentially large-scale in nature " *

(III) AVERAGE SIZE OF FACTORIES

Judged from the criterion of employment, an average factory in the city island having 148 workers was much larger in size than its counterpart in the suburbs employing 82 workers. The average factory in Greater Bombay employed 133 persons in 1956. The difference in regard to textile factories was particularly striking whereas the city factory was nearly six times in size in comparison to the textile factory in suburbs. This can be explained by the fact that most of the oldest cotton mills which had a scope for gradual expansion were concentrated in the city. In contrast to textile factories the size of metal and engineering, food and other factories was larger in the suburbs.

In the city area, an average factory in F and G wards employed the largest number of workers, namely 310 and 312, respectively. The smallest averages of 20, 41 and 47 were found in C, B and D wards, respectively. It is also interesting to note that the highest averages in almost all industries except printing and publishing were found in F and G wards. It can therefore be deduced that larger sized factories found a more convenient location in these areas, possibly due to availability of cheaper and ampler space, particularly in the initial stages of development of industries in Bombay.

In 1941, the industrial structure of Salsette was comprised of the following industries:--

Bandra	.. Cigarette factory, Dyeing works, Chemical works and Tanneries.
Andheri	.. Stone quarrying, Biscuit and Peppermint factory, Button factory, Soap factory, Tobacco factory, Canvas shoe factory, Match factory and manufacture of moulded ware.
Chakala	.. Stone quarrying and Fire works.
Malad	.. Manufacture of rubber toys.
Kandivli	.. Manufacture of umbrella handles.
Kanheri	.. Hosiery works.
Bhayandar	.. Salt manufacture.
Kurla	.. Spinning and Weaving mills, Match factory and manufacture of carpets.

* D. T. Lakadawala, op. cit., p. 668.

Ghatkopar.. Canvas belt factory, Photo litho art press and Camphor factory.

Hariyali .. Machinery repairing works, Paper and board mills and Metal works.

Mulund .. Photo litho and metal printing works, Grinding and machinery works and Cement works.

Kopri .. Stone quarrying.

Naupada .. Match factory.

In the course of less than two decades following 1941, both the number and variety of industries in Salsette had grown remarkably. According to the records of the Chief Inspector of Factories, there were in all 926 factories in Salsette in June, 1958. Of these 28 factories had been closed down and 187 did not respond. The total number of responding factories for which employment data are available, therefore, worked out to 711. These 711 factories employed, on an average, 65,000 workers daily.

The rapid increase in the number and variety of industries can be ascribed to the effects of the Second World War. In spite of the large area of Salsette, its industries scarcely amounted to three-tenth of that of the City, while the industrial workers formed a still smaller proportion.

As regards the relative importance of the different industries, the highest percentage of industries and industrial workers, *viz.* 20.7 per cent and 26.2 per cent respectively, belonged to the textile group. Next in order of descending importance ranked non-metallic mineral products (except products of petroleum and coal), transport equipment, chemicals and chemical products, metal products (except machinery and transport equipment), basic metal industries, machinery (except electrical machinery), products of petroleum and coal, food except beverages, electrical machinery, apparatus, appliances and supplies, rubber and rubber products, which together accounted for 58 per cent of the industries as well as of industrial workers.

The two industries, *viz.* processes allied to agriculture and tobacco were absent in Salsette. Factories of beverages, furniture and fixtures, leather and leather products (except footwear), water and sanitary services and personal services were a few in number. They were hardly one per cent of the total industries and industrial workers.

Thus the most important industries of the Salsette were textiles, chemicals, rubber, minerals, metals, machinery and transport equipment. These industries are usually classified as heavy industries, as they are noisy, noxious and as a rule require large ground space. Since these heavy industries accounted for as much as 80 per cent of the total industrial

establishments and five per cent more of the industrial workers, the general complexion of Salsette's industrial structure could be said to be predominantly heavy.

TABLE No. 2

NUMBER OF INDUSTRIES AND WORKERS IN SALSETTE, 1958

Classification	No. of factories	No. of employees	Average size of a factory.
Processes allied to agriculture	....	....	....
Food (except beverages)	41	2,170	53
Beverages	2	58	29
Tobacco	....	....	....
Textiles	147	16,906	115
Footwear, wearing apparel and made-up textile goods.	4	106	26
Wood and cork (except furniture) ..	13	736	56
Furniture and fixtures	2	49	24
Paper and paper products	6	608	101
Printing, publishing and allied industries ..	9	280	31
Leather and leather products (except footwear)	2	61	30
Rubber and rubber products	31	1,439	46
Chemicals and chemical products ..	79	4,989	63
Products of petroleum and coal	9	2,418	268
Non-metallic mineral products (except products of petroleum and coal)	99	7,975	81
Basic metal industries	31	3,651	118
Metal products (except machinery and transport equipment)	32	4,054	127
Machinery (except electrical machinery) ..	33	3,309	100
Electrical machinery, apparatus, appliances and supplies.	20	1,887	94
Transport and transport equipment) ..	20	6,083	304
Miscellaneous industries	25	1,488	59
Electricity, gas and steam	3	145	48
Water and sanitary services	1	26	26
Recreation services (cinema studios) ..	14	1,334	95
Personal services (laundries, dyeing and cleaning).	1	30	30
Unclassified	87	5,176	59
Total ..	711	64,978	91

Source.—Office of the Chief Inspector of Factories, Bombay.

PICTURE OF INDUSTRIAL GROWTH

As stated earlier Bombay is the industrial and commercial metropolis of India. It occupies a unique place in the industrial economy of India as diverse industries have grown and expanded here. The genesis of many industries in India is traceable in this city. A major sector of industries in Maharashtra is concentrated in the metropolis, while the growth in

the peripheral areas and in Pune belt is mainly an expansion of the growth pole in Bombay. It is therefore very interesting to study the growth of industrialisation in this city. The Annual Survey of Industries conducted by the Government of India which is the most authoritative source of data enables us to analyse the important characteristics of industries. As per these statistics there are about 6,048 factories registered under the Factories Act which provide employment to 6,21,495 persons in Greater Bombay. The total value of their output is as high as Rs. 43,49,58.02 lakhs, the value added on manufacture being Rs. 9,42,11.69 lakhs. The important characteristics of industries in Greater Bombay district as per the Annual Survey of Industries, 1973-74 and 1975-77 are given below.[1] The figures reveal the annual averages in the respective survey periods.

TABLE No. 3

IMPORTANT CHARACTERISTICS OF INDUSTRIES (ESTIMATED) IN GREATER BOMBAY AS PER THE ANNUAL SURVEY OF INDUSTRIES, 1973-74 AND 1975-77

(Figures of Rs. in lakhs)

Item	1973-74	1975-77
1. No. of estimated factories	5,874	6,048
2. Fixed capital (Rs.)	11,32,43.89	8,24,35.32
3. Working capital (Rs.)	6,89,58.14	6,84,82.80
4. Capital investment (Rs.)	20,51,28.74	18,80,89.37
5. Outstanding loans (Rs.)	N.A.	9,86,40.96
6. Man-days worked (No.)	N.A.	19,00,58,453
7. All workers (No.)	5,53,418	4,80,970
8. All employees (No.)	6,74,797	6,21,495
9. Wages to workers (Rs.)	2,61,60.19	3,10,36.43
10. Total emoluments (Rs.)	405,41.29	5,15,14.43
11. Fuel consumed (Rs.)	N.A.	1,85,52.71
12. Material consumed (Rs.)	N.A.	25,77,44.33
13. Other inputs (Rs.)	N.A.	5,61,85.49
14. Total inputs (Rs.)	22,81,19.97	33,24,82.53
15. Plant & Machinery (Rs)	N.A.	13,02,44.83
16. Value of products (Rs.)	N.A.	37,29,14.83
17. Other output (Rs.)	N.A.	6,20,43.19
18. Total output (Rs.)	32,00,09.79	43,49,58.02
19. Depreciation (Rs.)	N.A.	82,63.80
20. Value added (Rs.)	8,29,77.42	9,42,11.69
21. Factory payment (Rs.,	N.A.	1,50,57.19
22. Net income (Rs.)	N.A.	7,91,54.50

[1] The statistics are supplied by the Directorate of Economics and Statistics, Government of Maharashtra.

COTTON TEXTILE INDUSTRY

The cotton textile industry is the prime industry of Bombay which has contributed immensely to the economic prosperity and social advancement of this metropolitan city of India. The enormous expansion of Bombay's industry and trade and her prosperity have mainly been dependent upon the spinning and weaving factories and on their impact on the economic welfare of her inhabitants. The history of the textile industry of Bombay is, in fact, the history of economic growth of Western India, and her prosperity.

The mill industry in Bombay ever since its inception about 130 years ago has remained the foremost indigenous industry of India. It provides employment to about two and a half lakhs of persons in the city, at present. Bombay alone employs a little less than half of the industrial workers employed in the cotton mill industry of India. Besides its potentialities as regards employment, it encouraged the growth of many ancillary industries, such as textile machinery manufacture, engineering workshops, packaging units, manufacture of dye-stuffs and chemicals and many others. Its role in the development of this city is more or less of a pioneering one, which has accelerated the growth of many other industries. It also provides an impetus to the establishment of many commercial concerns, managing agents and financial institutions. The Bombay Stock Exchange was once highly dominated by this industry. According to one estimate, the cotton textile industry accounts for nearly 20 per cent of the value of industrial production in Bombay.

The factors contributing to the localisation of the cotton textile industry in Bombay are economic, geographic, as also social. Bombay, a fine natural harbour on the western sea-board, afforded excellent marine transport facilities to other ports in India and those in African, Asian and European countries. The important factor which helped the initial concentration of the industry in Bombay was that the city enjoyed excellent transport relations both in regard to raw materials and consumers markets. Owing to its insular position it enjoyed the advantages of cheap sea-freights on import of machinery, mill stores and other accessories. Besides, being the important junction of trunk railways, Bombay was connected well with the interior markets of raw cotton and piecegoods. The policy of the railways to charge lower rates of freight from and to the ports increased the transport advantages of Bombay over other inland towns. In the early days of the cotton mill industry, the flourishing trade in yarn with China offered additional incentive for concentration of the industry in the city.

The growth of the industry in Bombay also owes immensely to a pioneering class of men with amazing commercial carrier, vast financial resources and considerable experience of business management and organisation.

Men like Cowasji Davar, Maneckji Petit, Dinshaw Petit, Jamshetji Tata, Khatau Makanji, Morarjee Goculdas and a galaxy of wealthy Parsis and Bhatias ventured on mill building with conspicuous success.[1] A number of indigenous bankers and banking institutions have played an important role in the growth of the industry. The infrastructure which was so very abundant in Bombay was not easily available at other centres. Technical and professional services too were easily available, as also plentiful supply of cheap and skilled labour from neighbouring districts of Konkan, Satara and Sholapur. The humid climate of Bombay offered yet another advantage as in spinning and weaving processes the fibre becomes more tenacious due to moisture. The availability of raw cotton from the hinterland in Maharashtra and Gujarat also helped growth of the industry. A fortutious combination of all these factors led to the phenomenal development of the industry in Bombay till the twenties of this century.

A study of the locational trends in the industry in India reveals the relative decline in the predominant position of Bombay and the relative spreading out of industrial activity in more and more interior regions. The reasons for the dispersal of the cotton textile industry are as under. The initial dispersal of the industry was mainly due to the development of means of transport in the interior regions. It was only after a network of railways that many new centres sprang up. Some of the new centres were also more favourably located in regard to raw materials and consumers' markets, than the original centre like Bombay. The cotton mills, therefore sprang up in many new centres. Another contributory factor was the shift of the industry from high to low labour costs. The development of hydro-electric resources in the country particularly Tamil Nadu, Karnatak and Punjab has given considerable impetus to cotton manufacturing in those areas. The high cost of labour at Bombay is a discouraging factor for future expansion of the industry. Since 1925, certain tendencies are operating which show that the industry is gradually shifting from old centres like Bombay to centres of low wage rates. The other deglomerating tendencies began as a result of, (*i*) increase in land values and rents, (*ii*) rise in cost of living, (*iii*) increase in internal cost of transport, and (*iv*) increase in taxes and water rates. In Bombay the number of mills declined from 82 in 1925 to 65 in 1958.[2] The operation of deglomerating tendencies has, by increasing the cost of production, considerably weakened the competitive position of Bombay. The industry has tended to move to more favourable locations.

[1] Most of the promoters of the industry did not have higher University education. But they had an enterprising career and most of them took part in public affairs and municipal government.

[2] M. M. Mehta, *Structure of Indian Industries*.

The history of the organised cotton textile industry in Bombay is traceable to the year 1851 wherein Mr. Cowasji Nanabhai Davar, an enterprising Parsi, projected a cotton spinning factory. The Bombay Spinning and Weaving Mill, as it was called, was erected at Tardeo, now in the heart of the city and was inaugurated on February 22nd, 1854.[1] The enterprise proved a great success and Mr. Davar felt encouraged to establish another mill in proximity to the first one. The second venture, known as the Bombay Throstle Mill, was undertaken in 1857,[2] and was later renamed as Alliance Mill in 1864. The success of this undertaking induced Mr. Maneckji N. Petit to erect the Oriental Mill in 1858 with 30,000 spindles. The third venture was so prosperous that it was converted into a joint-stock company and considerably expanded with new machinery including 50,000 spindles and 1,000 looms. It was in 1860 that the foundations of the managing agency system in cotton textile industry in Bombay were laid. The Oriental Mill was the first enterprise to introduce the managing agency system.

Another stalwart in Bombay's business was Sir Dinshaw Maneckji Petit who floated the Maneckji Petit mill in 1860 with 60,000 spindles and 1,000 looms. This venture also yielded handsome returns which induced further industrial enterprise not only among the Parsi community but also among the wealthy Bhatias who undertook mill establishment with good success. The next years witnessed the projection of nearly a dozen mills, and the industry spreaded to other parts of Bombay Presidency. Sir Dinshaw Petit himself started another mill *viz.*, the Victoria Mill in 1860, which was a spinning mill. The other mills started during this period were as under :—

Royal Mill (1860), Coorla Mill (1860), Bombay United (1860), Great Eastern (1860), Arkwright (1863), Albert (Parel) (1867), Alexandra (1869) and Morarjee (1870). The thirteen mills mentioned in above paras employed about 8,100 workers and had 2,91,000 spindles and 4,100 looms.

The enterprise of the Bombay men of amazing commercial career initiated enormous growth in the industry and trade of not only the Presidency but also of the country. For this India is highly indebted to the early pioneers of the industry.[3] The demand for the Bombay cloth and yarn was increasing mainly because of its cheapness as compared to the Lancashire industry. The cheapness of the products was attributable

[1] Another date of the inauguration of the Mill is given as February 7, 1856.

[2] It went into production in 1859.

[3] A few of them may be mentioned as : Davar, Maneckji Petit, Dinshaw Petit, Nusserwanji Petit, Bomanji Wadia, Dharamsey Punjabhoy, Merwanji Pandey, Jamshetji Tata, Tapidas Varajdas, Keshawji Naik, Khatau Makanji, Mangaldas Nathubhai, James Greaves, George Cotton, Morarjee Goculdas, Muncherji Banaji, Moolji Jetha, Thackersey Moolji and many others.

to lower wages, cheap raw cotton from the hinterland, abundance of coal and plenty of capital with the Bombay businessmen.

The progress of the mill industry in Bombay was temporarily arrested in 1861 which condition continued for nearly ten years. This was mainly on account of the American Civil War which broke out in April 1861, and due to the abnormal demand for Indian cotton and the fabulous prices it fetched in England. The civil war interrupted supply of raw cotton to England from America which resulted into unprecedented spurt in cotton trade in Bombay. The traders in the city invested all their capital in cotton exports. The value of cotton exports increased from 5.25 millions in 1860 to 80 millions in 1865. The American Civil War and its aftermath convulsed the commercial life of Bombay with an unprecedented intensity. The super abundance of wealth due to, what was termed the Share Mania stimulated wilder enterprises in other directions, such as, banking, financial associations, shipping, land and building business, etc. The Back Bay Reclamation Project beat every other venture.

The end of the civil war in 1865 however initiated the most widespread economic ruin and general disaster in the history of the city. It was a period of near stagnation for cotton mills. The prices of cotton fell with an appalling rapidity, and securities dropped heavily. It was only by the end of 1870 that normal conditions returned, and the textile industry experienced conditions of revival. Large concerns like the Alexandra and the Morarjee Goculdas Mills were started about this period. They were followed by 15 mills during the next five years.[1]

It was also this time that Jamshetji Tata emerged as an enterprising progressive industrialist who had a tremendous influence on the growth of the mill industry and the economical working of factories. He started the Alexandra Mill in 1869 and later the Central India Spinning and Weaving Company. The Alexandra Mill soon became one of the most efficient units in Western India, and was sold at a large profit.

Mr. Tata was the first Indian industrialist to introduce a system of fair deal to labour in this industry. He was the first to introduce bonus and provident fund for his employees, besides other labour welfare measures. In course of time, he set up more mills in Western India. To set aside chronology for the time being, he started the Swadeshi Mill in Bombay in 1886 for production of finer varieties of textile with long staple cotton. The Tatas established another famous mill, *viz.*, the Tata Mills, in 1915 after Jamshetji Tata's death.

Morarjee Goculdas established a cotton mill after his name in 1870. This was followed by many mills. Thackersey Moolji floated the

[1] The history of cotton mills upto 1927 is based on *Bombay Industries : Cotton Mills*, 1927 by Mr. S. M. Rutnagur.

Hindoostan Spinning and Weaving Mill Company in 1873 with an authorised capital of Rs. 12,00,000. The Sassoon Spinning and Weaving Mill was started in 1874 by David Sassoon and Company. The Khatau Makanji Spinning and Weaving Mill, another well-known unit in Bombay was established in 1875. It is no small tribute to the sagacity and foresight of the founders of these enterprises that some of the houses like the Thackerseys and the Khataus have not only completed one hundred years of their productive existence but have also remained under the same management. The Morarjee Mills and the Coorla Mills also celebrated their birth centenaries, although their management has changed hands since incorporation.

In those days, initiative, desire and integrity marked the development of textile industry in Bombay. The mill-owners made profits, but did so by fair means and hard work.

The progress of the industry in Bombay during the first twenty years of its existence (upto December 1875), was as under:—

Period	No. of mills	Spindles	Looms	Employment	Paid up Capital
1855–1870 ..	13	2,91,000	4,100	8,100	N.A.
1870–1875 ..	15	4,61,600	3,680	5,450	3,38,58,000
Total in 1875 ..	28	7,52,600	7,780	13,550	3,38,58,000

PROGRESS BETWEEN 1875 AND 1885

The progress of the industry in this period was particularly rapid, there being 21 new mills by the end of 1885. The third group of new mills comprised the spinning factories started by Greaves, Cotton and Co., which were the first in Bombay to be managed on the basis of a commission on profits for the Agents. They were quite profitable for the investors. Dinshaw Maneckji Petit's firm made further additions to their mills in this period, while Thackersey Moolji and Co. started two new factories which elevated them to the status of the largest millowners in the Hindu Community.

In all 23 new mills were projected between 1875 and 1885, while two were closed. The city thus possessed a total of 49 mills in 1885 as under:—

	Mills	Spindles	Looms	Employment	Paid-up capital
In 1875 ..	28	7,52,600	7,780	13,550	3,38,58,000
1875–85 ..	21	5,94,800	4,230	28,000	1,41,04,000
Total in 1885 ..	49	13,47,400	12,010	41,550	4,79,62,000

PROGRESS FROM 1885 TO 1895 : THE ADVENT OF RING SPINNING

The Bombay mills used to do spinning on the mule or fly throstle hitherto. However, introduction of the Ring spinning frame in this period was a revolutionary measure in the industry in respect of economy of costs. The Greaves, Cotton and Co., which took initiative in this respect was followed by many new mills which adopted this system, while some of the older mills also replaced the mules or throstles. These included the Empress, New Empress, Connaught, Howard and Bullough, Imperial, James Greaves, and Leopold with a total of 283,000 ring spindles which brought handsome returns.

It was during this period that the Revolving Flat Card was being perfected to supersede the Roller Card. Many other innovations introduced in Lancashire encouraged Bombay millowners to renew their plants, while new mills were projected under fresh enterprise. Consequently, the third period in the history of mills in Bombay 1885–95, brought in further addition of 21 mills, making 70 in all with an aggregate of 2,124,000 spindles, 20,220 looms and 75,750 workers. These new mills included those floated by Currimbhoy Ebrahim and Sons, Sassoon J. David and Co. and E. D. Sassoon and Co., which worked with marked success.

SLOW PROGRESS BETWEEN 1895 AND 1905

The progress of the industry was retarded by acute financial depression, as also by plague and famine. The companies which were not managed economically and efficiently either went into liquidation or changed the Agents. The bubonic plague of 1896-98 frightened the workers who migrated to their native place to escape the havoc of the epidemic. The famine which ensued added to the adverse conditions. The industry however showed conditions of revival in 1903. This period of ten years was marked by the establishment of some mills which have lived up to their reputation to the present day which include Gold Mohur (1896), Globe (1896), Kohinoor (1896) and Century (1898). Though 16 new mills including the ones mentioned above were started, four old mills were closed during this period, leaving a total of 82 mills in Bombay in 1905. The industry could not escape the ravages of the international depression in textile industry from 1900 to 1905.

JAPANESE COMPETITION : 1905–1915

The unpalatable memories of the plague and depression in the industry deferred the entrepreneurs from venturing in cotton mill building between 1905 and 1915. Japan, which had undertaken establishment of mills from 1900, began competing with Indian yarn in Chinese markets. This had an adverse impact on the Bombay textile industry. Investment

was channelised for improvement of existing machinery rather than for establishment of new mills. Though eight new mills were started in this period, four old ones were closed, leaving 86 mills in existence in 1915. The honourable additions to the mills in this period were as under: Finlay (1906), Spring (1908), Pearl (1913), Simplex (1915) and Tata (1915).

BETWEEN 1915 AND 1925

The outbreak of the First World War in 1914 and the stoppage of imports of machinery from Lancashire to India prevented establishment of new mills in Bombay for many years. The conditions for establishment of new mills remained adverse even after cessation of hostilities in 1918. The cost of land and construction was exhorbitant. There was also a demand recession after 1918. While Bombay was exporting yarn to China on a very large scale upto 1914, the exports fell rapidly on account of Japanese competition. Surprisingly enough, Japanese yarn and piece-goods were imported in Bombay.

As per the Administration Report of the Bombay Presidency for 1923-24, " Since 1917, China has been practically a closed market for Indian piece-goods owing mainly to the expansion of the indigenous textile industry and to the rigour of Japanese competition.".

The Premier mills projected by Currimbhoy and Sons in 1921 were the only addition to Bombay mills in this period. Five of the old mills were closed during this period. At the same time large extensions to existing plants were made which accounted for the heavy increase in the number of spindles and looms. The considerable rise in the paid-up capital in this period was due to conversion of private concerns into joint-stock companies and to the transfer of existing factories at enhanced capital cost during the boom period of 1920-22.

POSITION IN 1925

During the span of 70 years from 1855, 97 cotton mills were started in Bombay city. But many of them were destroyed by fire and closed, while in others the machinery was sold, leaving a total of 82 spinning and weaving mills in Bombay city including Coorla mill.

The summary of the progress during period of ten years is given below:—

It is noteworthy that there was an enormous increase in machinery in the mills after 1905. Large extensions were made in existing factories during 1915-25. There was a huge rise in spindles and weaving machinery. Competition from Japan and other trade conditions compelled Bombay millowners to search new markets and spin higher counts and weave a greater variety of cloth. Quality of the cloth was improved by bleaching, finishing and dyeing.

The old mills which faced a disadvantage due to paucity of weaving and other machinery were also renovated with looms, finishing plants and

modern improvements and processes. The Bombay cotton mills, in 1925, were in no way inferior to the Lancashire textile factories in their general equipment and manufacturing resources.[1]

As a matter of fact 97 mills had been established up to 1925, though there were only 8 surviving units. This was because many of them had been destroyed by fire or closed and dismantled. Excepting a few, the pioneering units turned out to be successful. However, the plague of 1896–98 and the famine which ensued depressed the industry miserably. The concerns not managed with efficiency and economy were the worst hit. The industry lost the Chinese markets on account of keen competition from Japan, which affected profits. The situation was aggravated by mismanagement and even corruption. The protests from shareholders and financial difficulties of the Agents compelled the closure or reconstruction of many undertakings. The loss of the Chinese market however brought about a material change in the character of the textile industry, which was hitherto a predominantly coarse yarn spinning industry. More looms were installed to turn out the excess yarn into cloth.

A mention must be made of the activities of the Bombay Millowners' Association, founded in 1875. It was actively concerned with the interests of the textile industry. The British Government recognising its importance and influence had allotted some seats to it in the Legislative Assembly, the Legislative Council and other corporate bodies in Bombay. It took an active part in the legislative and other measures connected with the working of the cotton mills.

The Bombay mills had to face prolonged strike from September 15, 1925 to December 1, 1925. Every mill was affected, a huge labour force of nearly 1.5 lakh striking work.

The Bombay Millowners' Association experienced very anxious periods during the trade depression of 1924-25. It directed itself to intensive efforts for the removal of the cotton excise duty which was repealed after 18 months of agitation. The industry was faced with competition of Japan, and the Association did a great deal of work by pleading its case for protection. The consequent gain for the industry was the appointment of the Textile Tariff Board by the Government of India in July 1926.

The Association pointed out to the Board the handicaps of the industry on account of exchange rates and employment of female labour in Japanese mills. The Indian industry, as advocated by the Association, required additional protection equivalent to 13 per cent and further additional protection to enable the Bombay mills to make the necessary allowances for depreciation to plant and machinery. The efforts of the Association bore some fruits though the basic problems were not solved by the Tariff Board.

[1] S. M. Rutnagur, op. cit.

It is very pertinent to mention a few characteristics of the Japanese competition in the third decade of this century. The Japanese selected particular types of goods which were manufactured in Bombay, and lowered their prices. The exchange rates of rupee *vis-a-vis* China and Japan put the Indian exports at a great disadvantage in 1924-25 gradually depreciating Japanese exchange coupled with the appreciation of the rupee exchange enabled the Japanese to compete with the Bombay mills successfully. The economical cost of production of Japanese cloth was also detrimental to the Bombay industry.

The Great Depression of 1929-30 which had a devastating impact on the industry and trade in almost all western countries and the British Empire however did not have had an adverse effect on the cotton textile industry of Bombay. Though one mill was closed in 1929, there was no appreciable fall in regard to number of spindles installed. In fact there was rise in the number of looms and quantum of raw cotton consumed by the mills in 1929, 1930 and 1931 over that in 1928. The industry appears to have enjoyed better conditions in 1927. But the depression did not appear to have slumped cotton mills even in comparison to 1930. The year 1934 appears to be adverse in the history of the industry in regard to fall in number of spindles, looms and consumption of cotton. The Bombay mills had made a loss of about Rs. 237 lakhs in 1930 due to competition by Japanese goods. The Bombay Millowners' Association suggested, in July 1932, an immediate increase in both the specific and *ad valorem* duty on grey cotton goods imported from Japan, and an *ad valorem* duty on all other classes of Japanese cotton goods as measures for according protection to the industry. The Government of India accepted these suggestions in 1933.

The industry in Bombay showed a declining trend in 1939 in regard to the number of mills in operation, which declined to 68 in that year, to 65 in 1940 and 64 in 1941. Some of the mills preferred to switch over to other productive avenues and closed while others were destroyed by fire. This was however not a real decline in the growth of the industry. Except for some aberrations in 1940, the cotton textile industry experienced buoyancy throughout the period of the Great World War of 1939-45. There was an unprecedented demand for cloth in the Indian market as imports had virtually been restricted to meet the needs of the war effort. Huge orders were placed by the Government to clothe the armed forces of the Indian Army. The industry geared itself to help the British Government and to reap the harvest of profits. Consumption of raw cotton increased immensely, though imports of long staple cotton virtually ceased, due to the war. The consumption of cotton by mills in Bombay increased from 8.13 lakh bales (of 392 lbs.) in 1940 to 11.48 lakh bales in 1941; 13.10 lakh bales in 1942; 14.84 lakh bales in 1943; 14.52 lakh

bales in 1944 and to 14.93 lakh bales in 1945. The installed capacity of the mills was fully utilised. The cessation of hostilities in 1945 however retarded the growth of the industry and there was a sharp decline. With the recession in demand production was curtailed and installed capacity was under-utilised. The inherent structural drawbacks of the cotton textile industry in Bombay were exposed immediately after the war. It was mainly a labour intensive industry. There was hardly any research and development project. The machinery was out-dated, while replacement was virtually impossible during the buoyancy in the war period. Due to lack of replacement, they showed signs of ageing, over-utilised as it was during the listlessness of the war demand.

The ailments of the old cotton mills of Bombay were conspicuously experienced after the war. This trail of events reached its culmination in 1951, resulting in a heavy decline in production and employment. The partition of India in 1947 was another great blow to the industry, as indeed it was to the Indian economy as a whole. From times immemorial, India had enjoyed the advantage of self-sufficiency in cotton, except a small quantity of long staple varieties. With partition of India, the supply of raw cotton of good quality was adversely affected.

While it was clear that the relatively weak and marginal units required an accelerated pace of modernisation, the financial constraints made it impossible for them to undertake the desired modernisation.[1] Besides, financial constraints, the modernisation and replacement programme was handicapped by shortage of textile machinery from domestic sources. " While the availability of finances with the mills and with the lending institutions represents one of the limiting factors affecting the size of a practicable modernisation programme for the industry, the other constraint of machinery supply is perhaps even more important."[2]

The inevitable result was that a number of old cotton mills which were not managed efficiently with due care for rationalisation and replacement of machinery fell 'sick' after Independence. The ailment of obsolete and relatively inefficient machinery made them 'sick'.

In the period 1955 to 1959 and again 1964 to 1971, the cotton textile industry passed through a difficult phase on account of the shortage of raw material, power and some recession in demand. The lower capacity utilisation on account of inadequate supply of cotton and difficult working capital position, coupled with low machine productivity resulted in the closure of a large number of mills.[3]

[1] *Final Report of the Task Force on Textile Industries*, Planning Commission of India, 1972.
[2] Ibid.
[3] Ibid.

In view of the large scale unemployment and decline in production, Government was obliged to take over the management of mills which were closed or were facing imminent closure under the Industries (Development and Regulation) Act, 1951. The incidence of sicknessand closure was more after 1964-65. This made it imperative on the part of the Government of India to establish the National Textile Corporation in 1968 to undertake management of the ailing factories. The first task of the management in the public sector was to undertake a thorough measure of renovation and replacement of obsolete machinery and rationalisation of production. The following mills in Bombay were nationalised under the Sick Textile Undertakings (Nationalisation) Act, 1974. The amount of compensation payable in respect of them is mentioned against them :—

Mills	Amount Rs.
1. Digvijay Spg. and Wvg. Mills	75,65,000
2. Edward Mill	65,28,000
3. India United Mills (six units and one dye work) ..	12,40,000
4. New Kaiser Hind Mill	48,70,000
5. Seksaria Cotton Mill	49,67,000

" Most of the sick mills have an excessive labour force which has contributed to higher labour cost per unit of output of yarn and cloth. The question of retrenchment of surplus labour is evidently a difficult one in view of the scarcity of employment opportunities in the economy." [1]

The textile mills remained by far the biggest employer of labour in manufacturing, accounting for half of all working force in manufacturing in 1961. Its pre-eminence was more conspicuous in earlier times. " During the sixties, the relative decline of cotton mill employment turned into an absolute decline. There was stagnation in output as well as replacement of men (and especially women) by machinery." [2]

The statistics given below for changes in the average levels of outputs and inputs of the Bombay cotton mills between 1958–60 and 1968–70 indicate that the ratios of capital and material inputs in relation to labour have increased.[3]

Cotton Mills in Bombay : Index of Inputs and Output, 1968–70
(1958–1960 = 100)

Average Daily working Spindles	Looms	Cotton Consumption (Bales)	Daily Employment	Yarn (tons)	Cloth (metres)
108 ..	95	96	89	93	84

[1] *Report of the Task Force on Textile Industries.*
[2] *Heather Joshi and Vijay Joshi, Surplus Labour and the City*, p. 63.
[3] *Bombay Millowners' Association, Annual Report*: 1971.

The quality of output of cloth improved between 1961 and 1970. This is evident from following figures of qualities of cloth produced by Bombay cotton mills:—

Quality	1961	1970	1961	1970
	(Thousand metres)		(Percentage of Total)	
All	1,371	1,120	100	100
Coarse	241	136	18	12
Medium	990	674	72	60
Fine and superfine ..	140	311	10	28

The latter phenomenon, known as ' rationalisation ', is probably in part a case of pure factor substitution in response to higher wage costs, but probably it also reflects changes in technique in response to changing product-mix and also technical advancement. Improved techniques tend to involve increase in capital intensity and so do new types of cloth, synthetics and blended fabrics, as well as better quality cotton textiles.

While the cotton industry of the country as a whole was loosing ground on the world market, the decline in textile employment was " more pronounced in Bombay than in the rest of the country. This was presumably because of the greater weight of high quality cloth in the output of Bombay cotton mills and because of the high level of wages in Bombay in relation to other parts of the country."[1] The growth of employment was much faster in a newer industry like chemicals and pharmaceuticals. Other branches of manufacturing expanded employment at a rate comparable with other sectors of production. " It should be pointed out that the skill-intensity of expanding industries such as petrochemicals, pharmaceuticals and electronics is probably significantly higher than that of the older, stagnating textile sector."[2]

A significant feature of the cotton mill industry of Bombay has been the fall in the employment of women from about 11,000 in 1961 to 6,500 in 1971 which means a decline by about 41 per cent. The women employed in the mills were mainly unskilled and illiterate reelers and winders, which jobs were becoming increasingly automatic. Women's jobs are not only confined to a few occupations, but they also find it difficult to compete with men.[3]

TREND IN SIZE OF COTTON MILLS IN BOMBAY

A study in the recent trends in the size of industrial units in the cotton mill industry of Bombay over the period 1905 to 1959 by Dr. M. M. Mehta reveals many interesting features. According to this study there was a preponderance of smaller units and a comparative absence of bigger

[1] Heather Joshi and Vijay Joshi, op. cit.
[2] Ibid.
[3] Ibid.

spinning units in the earlier period. In 1905, 54 out of 73 units had less than 40,000 spindles. Thereafter there was a fall in the number of these smaller units having less than 40,000 spindles. Many of them were either scrapped, dismantled or absorbed by bigger units. The period of decadence of smaller units coincided with the period of Great Depression. "There has been a relative spreading out of units into somewhat larger dimensions." The average size of spinning section increased from 32,000 spindles in 1905 to 58,000 in 1959.

There is a tendency on the part of the units to grow out of their humble beginnings and to expand as the financial resources permit. The periods of rapid expansion generally coincided with periods of great industrial activity, and *vice versa*. The large expansion in the size of units from 1951 to 1959 is partly accounted for by the various development programmes under the five year plans, and partly by large concessions, protective duties, ban on imports, increase in demand and an assured home market.

In regard to the weaving section of the cotton mill industry of Bombay during 1905-59 period Dr. Mehta's study reveals that there was preponderance of the smaller units and a comparative absence of bigger units in earlier years. In subsequent years the smaller units saw extinction while the bigger ones expanded. During the early period, it was the expansion of spinning that brought about expansion of weaving. In subsequent period, the expansion of weaving section of textile industry brought about an expansion of the spinning section. The tempo of expansion is higher in the case of weaving than in the case of spinning. This is because of firstly, the changing character of the Bombay cotton industy from a predominantly spinning to combined spinning and weaving type, and secondly, the changes in the character of output and diversification of production, which required a higher proportion of loomage to spindleage.

Dr. Mehta's study of the trends in size of combined spinning-weaving factories during the period 1906-59 suggests that "a tendency is operating, though indistinctly, in the earlier period and more marked in the later years, for spindles and looms to combine within a certain range of ratios. The ratio of 40 spindles to one loom is becoming more and more pronounced though it will, in individual cases, vary according to the degree of specialization and the character of output. Production of finer varieties will involve a higher proportion of spindleage to loomage than production of inferior varieties."

"The movement towards specialization, has not made any appreciable progress during the last fifty years. Most of the units still operate on quite a wide range of counts and weave many varieties of cloth to meet the diverse requirements of the Indian market. The average ratio between spindleage and loomage in each individual unit, therefore, exhibits

narrow range of variation. This feature one would hardly observe in case of Lancashire industry where each individual unit specializes in the production of particular counts of yarn and particular varieties of cloth."[1]

The typical mill in Bombay had 500 to 1,000 looms and 20,000 to 40,000 spindles in 1921. By 1959, the size of the typical unit expanded considerably. In 1959, the typical spinning-weaving mill in the city had a range of 750 to 1,250 looms and 30,000 to 60,000 spindles. The expansionist tendency is thus clearly observable.

Variation in Profit Rates : It is interesting to observe the existence of the disparity in the inter-unit rates of profits. The inter-unit variations are of considerable dimensions in Bombay textile industry. The average rates of profit declared during the period 1938–57 varied from 4.72 in the case of the Colaba mill to 22.65 in the case of the Simplex mill, the majority of the mills having declared profits at the average rates varying from 5 to 20 per cent. The variations in rates of profits in some of the cotton mills in Bombay during the period 1938–55 are given below[2]:—

Mill	Average rate of profit declared, 1938–55	Mill	Average rate of profit declared, 1938–55
1. Colaba	.. 4.72	12. Phoenix	.. 17.31
2. India United	.. 6.16	13. Bombay Dyeing	.. 17.36
3. Elphinstone	.. 7.38	14. Gold Mohur	.. 17.81
4. Edward Textiles	.. 8.87	15. Western India	.. 18.17
5. Coorla	.. 9.02	16. Morarjee Goculdas	.. 18.37
6. New Great	.. 11.37	17. Swan	.. 19.12
7. Apollo	.. 11.40	18. Indian Manufacturing	19.80
8. New City	.. 13.10	19. Hindoostan	.. 20.25
9. Dawn	.. 15.33	20. Century	.. 20.68
10. Finlay	.. 15.48	21. Kohinoor	.. 21.69
11. Swadeshi	.. 16.88	22. Simplex	.. 22.65

It is noteworthy that the Kohinoor and Century Mills were then of exceptionally large size with more than 95,000 spindles. The disadvantages arising from their locations could be more than off-set by the counter-vailing economies arising from the expansion in the scale of output, greater efficiency and management, and the degree of financial, managerial and administrative integrations. These factors important as they are contributed very substantially in sustaining the competitive power and efficiency of the Bombay industry. It therefore follows that the endurance, tenacity and competitive power of less favourably situated units depend,

[1] M. M. Mehta, op. cit., pp. 38-39.
[2] M. M. Mehta, op. cit.

in the long run, on their ability to counteract some of the diseconomies arising out of less favourable locations by superior organising ability.[1]

Besides inter-unit variations in profit rates, there were wide inter-regional variations as between Bombay and other centres of the cotton textile industry in India. A detailed study of these various centres is not intended here. It suffices to say that the mills in Bombay fared comparatively better than those in other regions.

Variation in Costs : The nature and extent of inter-regional differences in the cost structure of the cotton industry is a very important aspect which can throw a light on the propensity to shift manufacturing activity to some centres with low costs of production. The Indian Tariff Board Report on Cotton Textile Industry, 1932,[2] has attempted to give the percentage of the component items of manufacturing costs like labour, fuel and power, water, stores, etc. to the cost of production in some important centres of the cotton mill industry in India. The Report of the Board did not take in to account the cost of raw material as also the "margin of profit". The explanation furnished by the Tariff Board in excluding the cost of raw cotton was that the prices of raw cotton varied from time to time, and that the individual mills mixed the different varieties of cotton in different proportions.

Dr. Mehta has compiled the percentage of each component item of cost like raw materials, wages, stores, power and fuel etc., to the total value of goods sold, thus taking into account both the distributive costs as also the margin of profit. The results of compilation pertaining to Bombay, Sholapur and Nagpur are given below:—

TABLE No. 4

REGIONAL VARIATION OF COSTS IN THE COTTON MILL INDUSTRY OF MAHARASHTRA, 1948

	Bombay	Sholapur	Nagpur
Number of units examined	3	2	2
Items	%	%	%
Raw Materials	36.20	36.20	41.50
Stores	9.73	5.65	6.90
Power and Fuel	1.77	2.90	2.85
Wages and Salaries	31.50	32.15	28.65
Interest	1.33	0.10	0.55
Depreciation	1.63	1.05	1.65
Managing Agents' Allowances and Commission	0.50	1.15	1.20
Selling Expenses	5.90	0.45	1.60
Other Expenses	....	5.95	4.05
Total Costs	88.56	85.60	88.95
Profit	11.44	14.40	11.05
Total Sales	100.00	100.00	100.00

[1] M. M. Mehta, op. cit.

[2] For details *see* the Report.

Broadly speaking, it can be said that the balance of advantage in respect of the supplies of raw cotton is against Bombay. It should however be remembered that these differences are not solely due to the locational advantages or disadvantages of different centres in regard to supplies of raw cotton, but to the differences in the character and quality of output, and the proportion in which several varieties of cotton are mixed in order to produce the desired quality of output. Indeed, the data available for study would not admit of any definitive inference or conclusion.[1]

The concluding remarks of the Indian Tariff Board are worthy of consideration. "Our examination of the cost of production in various centres shows that for the greatest disability from which Bombay suffers is its high cost of labour. It is also under substantial disadvantages in regard to cost of fuel and power, cost of water and higher local taxation, but these are rather more than off-set by advantages in regard to the cost of stores, of insurance and of office expenses. So far as costs of production are concerned, it is in labour costs that is to be found the main reason why the depression in the industry has been felt so much more acutely in Bombay than it has elsewhere."[2]

The progress of the cotton textile industry which is not only the oldest but also the largest and the most important industry of Bombay is reviewed from 1885 to 1975, in tables Nos. 5, 6, 7 and 8.

The position of the cotton textile mill companies in Bombay in regard to their total amount of paid-up capital, number of spindles installed, average number of spindles at work in the first shift, doubling spindles installed, number of looms installed, average number of looms at work in the first shift, approximate quantity of cotton consumed, average number of workers employed daily in all shifts and total number of working days can be assessed from table No.5.

TABLE No. 5

COTTON MILLS IN BOMBAY SINCE 1885

Year	Mills	Spindles	Looms	Average number of hands employed daily	Approximate quantity of cotton consumed	
					Cwts. (Bales of 112 lbs.)	Bales (392 lbs.)
1	2	3	4	5	6	7
1885 ..	49	13,47,390	12,011	41,545	13,73,743	3,92,498
1890 ..	70	18,95,660	13,785	59,139	22,26,819	6,36,234
1895 ..	69	21,23,892	20,217	75,740	28,53,879	8,15,394
1900 ..	82	25,36,891	22,215	72,914	26,06,800	7,44,800

[1] M. M. Mehta, op. cit.

[2] *Indian Tariff Board Report on the Cotton Textile Industry*, 1927, p. 123.

TABLE No. 5—*contd.*

Year	Mills	Spindles	Looms	Average number of hands employed daily	Approximate quantity of cotton consumed	
					Cwts. (Bales of 112 lbs.)	Bales (392 lbs.)
1	2	3	4	5	6	7
1905 ..	81	25,60,916	28,073	92,924	37,53,582	10,72,452
1910 ..	89	28,24,046	41,931	1,04,550	34,44,203	9,84,058
1915 ..	86	29,94,367	51,846	1,11,924	35,91,175	10,26,050
1920 ..	83	29,64,526	60,634	1,40,208	33,50,025	9,57,150
1925 ..	82	34,56,233	72,266	1,53,009	34,81,562	8,94,732
1930 ..	81	34,30,733	76,697	N.A.	30,71,222	8,77,492
1935 ..	74	29,90,088	68,385	N.A.	30,98,382	8,85,252
1940 ..	65	27,48,644	65,177	N.A.	28,47,075	8,13,450
1941 ..	64	27,89,080	65,292	NA.	40,17,888	11,47,968
1942 ..	66	28,19,832	66,120	N.A.	45,85,119	13,10,034
1943 ..	66	28,31,328	66,269	N.A.	51,95,617	14,84,462
1944 ..	65	28,34,052	66,179	N.A.	51,81,930	14,51,930
1945 ..	65	28,03,406	66,164	N.A.	52,26,340	14,93,240
1946 ..	65	28,32,530	65,948	1,90,795	47,68,701	13,62,486
1947 ..	65	28,50,870	65,836	2,11,347	39,44,724	11,27,064
1948 ..	65	28,66,150	65,880	2,01,083	43,03,040	12,29,440
1949 ..	65	29,04,138	65,238	2,09,508	41,80,442	11,94,412
1950 ..	65	29,27,162	65,163	2,00,135	35,21,455	10,06,130
1951 ..	65	29,39,162	65,384	1,96,363	32,39,761	9,25,646
1952 ..	65	29,20,509	65,379	1,97,900	36,46,685	10,41,910
1953 ..	65	30,17,049	65,628	2,04,274	43,53,643	12,43,898
1954 ..	65	30,26,044	65,671	2,07,179	44,09,587	12,59,882
1955 ..	66	31,01,672	65,904	2,03,391	44,49,557	12,71,302
1956 ..	66	31,13,620	64,467	2,12,762	44,41,297	12,68,942
1957 ..	66	31,60,954	64,134	2,12,608	46,71,086	13,34,596
1958 ..	65	32,12,650	64,426	2,00,446	43,83,295	12,52,370
1959 ..	65	31,69,777	64,335	1,91,335	43,47,742	12,42,212
1960 ..	65	31,93,699	63,407	1,94,398	42,55,349	12,15,814
1961 ..	63	32,25,441	62,880	1,97,404	44,45,952	12,70,272
1962 ..	62	32,09,560	61,720	1,97,922	46,79,262	13,36,932
1963 ..	62	32,35,928	62,186	1,93,303	44,87,049	12,82,014
1964 ..	62	33,54,872	63,273	1,97,269	47,26,008	13,50,288
1965 ..	62	34,29,491	63,255	1,92,786	46,82,167	13,37,962
1966 ..	62	35,21,411	63,713	1,86,915	43,01,983	12,29,138
1967 ..	59	35,60,730	64,134	1,85,601	41,33,472	11,80,992
1968 ..	59	*35,53,790	62,909	1,74,975	42,38,573	12,11,020
1969 ..	59	*35,56,702	63,057	1,70,766	41,33,990	11,66,717
1970 ..	59	*35,10,578	62,450	1,74,167	42,36,996	12,10,570
1971 ..	59	*35,35,114	62,897	1,72,208	38,70,734	11,05,924
1972 ..	59	*35,81,220	62,961	1,74,666	42,00,786	12,00,225
1973 ..	58	*35,46,488	62,066	1,78,236	43,52,675	12,43,622
1974 ..	58	*35,17,962	62,093	1,75,138	40,79,783	11,65,652
1975 ..	58	*35,52,754	62,564	1,67,819	39,08,700	11,16,691

*Excludes doubling spindles but includes waste spindles.

TABLE No. 6

PROGRESS OF COTTON TEXTILE MILL INDUSTRY IN BOMBAY

Year	Average working daily (1st Shift)		Cotton consumed bales of 392 lbs.	Production of		Average number of hands employed daily all shifts
	Spindles	Looms		Yarn (000 kgs.)	Cloth (million metres)	
1	2	3	4	5	6	7
	Year ending 31st August			Year ending 31st December		Year ending 31st August
1941 ..	2,465,515	62,688	1,147,968	206,083	1,372	....
1942 ..	2,457,782	61,141	1,310,034	207,644	1,257	....
1943 ..	2,578,875	63,171	1,484,462	232,071	1,470	....
1944 ..	2,633,694	63,863	1,451,980	230,354	1,545	....
1945 ..	2,587,850	65,390	1,493,240	229,686	1,475	....
1946 ..	2,625,770	62,312	1,362,486	185,837	1,238	190,795
1947 ..	2,646,600	60,968	1,127,064	170,426	1,138	211,347
1948 ..	2,682,245	61,452	1,229,440	194,965	1,342	201,083
1949 ..	2,574,850	60,096	1,194,412	175,577	1,182	209,508
1950 ..	2,667,556	61,209	1,006,130	134,125	959	200,135
1951 ..	2,655,637	60,874	925,646	165,253	1,253	196,363
1952 ..	2,688,330	61,690	1,041,910	173,777	1,297	197,900
1953 ..	2,758,193	62,645	1,243,898	193,147	1,431	204,274
1954 ..	2,800,581	62,405	1,259,882	192,445	1,438	207,179
1955 ..	2,779,397	62,074	1,271,302	199,910	1,459	203,319
1956 ..	2,867,952	61,693	1,268,942	196,290	1,469	212,762
1957 ..	2,872,308	60,745	1,334,596	208,985	1,508	212,608
1958 ..	2,802,895	59,497	1,252,370	189,767	1,370	200,446
1959 ..	2,804,418	58,531	1,242,212	192,627	1,344	191,335
1960 ..	2,877,061	58,442	1,215,814	189,475	1,347	194,398

TABLE No. 6—*contd.*

Year	Average working daily (1st Shift)		Cotton consumed bales of 392 lbs.	Production of		Average Number of hands employed daily all shifts
	Spindles	Looms		Yarn (000 kgs.)	Cloth (million metres)	
1	2	3	4	5	6	7
1961 ..	2,934,480	58,703	1,270,272	206,844	1,371	197,404
1962 ..	2,978,221	58,464	1,336,932	200,844	1,304	197,922
1963 ..	2,947,675	57,880	1,282,014	201,832	1,271	193,303
1964 ..	3,056,452	59,333	1,350,288	205,755	1,288	197,269
1965 ..	3,057,566	58,751	1,337,762	195,474	1,243	192,786
1966 ..	3,057,605	57,756	1,229,138	184,556	1,143	186,915
1967 ..	3,173,630	58,545	1,180,992	171,226	1,085	185,601
1968 ..	3,024,682	55,946	1,196,287	182,340	1,168	174,975
1969 ..	2,986,147	55,520	1,166,717	175,518	1,137	170,766
1970 ..	3,115,153	57,128	1,210,570	171,389	1,120	174,167
1971 ..	3,079,294	56,513	1,159,523	159,523	1,120	172,208
1972 ..	3,068,943	56,114	1,200,224	178,610	1,203	174,666
1973 ..	3,133,531	57,038	1,243,622	182,732	1,169	178,236
1974 ..	2,964,009	54,861	1,165,652	166,229	1,125	175,138
1975 ..	2,696,889	52,869	1,116,691	160,889	1,074	167,819
1976 ..	2,874,811	52,298	1,232,539	169,169	1,069	174,027
1977 ..	2,902,790	54,386	1,086,175	138,466	896	170,286
1978 ..	7,868,288	54,855	1,013,490	153,471	928	167,273
1979 ..	2,756,909	53,152	1,056,081	148,801	863	164,187
1980 ..	2,765,038	54,119	1,177,158	166,120	899	165,126

Note.—Columns 1, 2, 3 and 6—Figures taken from the Association's *Mill Statements.* Columns 4 and 5—Figures of production of yarn and cloth taken from "*Indian Textile Bulletin*" published by the Office of the Textile Commissioner, Bombay.

Production was at a standstill in all the mills in Bombay City and Island for about 2 months from 14th August to 2nd week of October in 1950 and for 41 days, from 30th December 1973 to 9th February 1974.

TABLE No. 7

PRODUCTION OF CLOTH BY TEXTILE MILLS IN BOMBAY CITY

(Figures in million metres)

Year	Coarse	Medium		Fine	Super Fine	Total
		Lower	Higher			
1	2	3	4	5	6	7
1967 ..	165	213	459	46	202	1,085
	(15.2)	(19.7)	(42.3)	(4.2)	(18.6)	(100.0)
1968 ..	171	248	467	58	224	1,168
	(14.6)	(21.2)	(40.0)	(5.0)	(19.2)	(100.0)
1969 ..	136	208	542	52	199	1,137
	(12.0)	(18.3)	(47.7)	(4.5)	(17.5)	(100.0)
1970 ..	135	174	500	67	244	1,120
	(12.1)	(15.5)	(44.6)	(6.0)	(21.8)	(100.0)
1971 ..	123	204	472	72	249	1,120
	(11.0)	(18.2)	(42.1)	(6.4)	(22.3)	(100.0)
1972 ..	155	259	528	53	208	1,203
	(12.9)	(21.5)	(43.9)	(4.4)	(17.3)	(100.0)
1973 ..	172	278	416	91	212	1,169
	(14.7)	(23.8)	(35.6)	(7.8)	(18.1)	(100.0)
1974 ..	143	256	499	75	153	1,125
	(12.6)	(22.7)	(44.4)	(6.7)	(13.6)	(100.0)
1975 ..	143	249	448	64	170	1,074
	(13.3)	(23.2)	(41.7)	(6.0)	(15.8)	(100.0)
1976 ..	155	252	446	67	149	1,069
	(14.5)	(23.6)	(41.7)	(7.3)	(13.9)	(100.0)
1977 ..	219	293	560	44	172	1,288
	(17.0)	(22.7)	(43.5)	(3.4)	(13.4)	(100.0)
1978 ..	129	221	462	48	68	928
	(13.9)	(23.8)	(49.7)	(5.2)	(7.4)	(100.0)
1979 ..	126	230	406	40	61	863
	(14.6)	(26.6)	(47.0)	(4.6)	(7.2)	(100.0)

(Figures in brackets indicate the percentage of each category of cloth produced.)

Source.—Figures extracted from the Statistical Bulletin entitled "***Indian Textile Bulletin***" published by the office of the Textile Commissioner, Bombay.

TABLE No. 8

COTTON MILLS IN BOMBAY, 1975

Name of Mill	Paid-up capital (Rs. in lakhs)	No. of spindles installed (Total)	Average No. of spindles at work	Doubling spindles installed	No. of looms installed (Total)	Average No. of looms at work in the first shift	Approximate quantity of Cotton consumed. (Bales of 180 Kgs).	Average No. of workers employed daily(All shifts)	Total No. of days worked from 1st Sept.74 to 31st Aug.1975.
1	2	3	4	5	6	7	8	9	10
1. Jupiter Mills No. 2* (formerly Hind Mills No.1).	....	82,292	53,869	7,628	1,325	1,185	21,474	3,440	288
2. Apollo Mills* ..	....	51,276	31,095	3,488	902	638	13,583	2,034	286
3. Bombay Dyeing and Mfg. Co. (Spring Mills).	433.69	1,34,368	1,22,047	12,912	2,160	2,105	57,668	5,477	301
4. Bombay Dyeing and Mfg. (Textile Mills).	....	15,232 71,688	2,213 61,917	23,280	1,610	1,169	25,422	6,792	303
5. Bradbury Mills ..	35.00	48,912	35,268	2,316	840	623	13,319	2,275	344
6. Century Spinning and Manufacturing.	709.76	1,44,444	1,23,380	7,336	3,042	2,933	77,980	9,899	345
7. Coorla Spinning and Weaving	65.00	36,228	31,473	1,424	654	605	17,067	2,148	298
8. Crown Spinning and Manufacturing Co. (formerly Dhun Mills).	50.00	59,396	38,450	6,868	1,141	905	15,047	2,411	346
9. Dakshe Pvt. Ltd.* ..	....	....	....	....	....	....	....	....	....

TABLE No. 8—*contd.*

Name of Mill	Paid-up capital (Rs. in lakhs)	No. of spindles installed (Total)	Average No. of spindles at work	Doubling spindles installed	No. of looms installed (Total)	Average No. of looms at work in the first shift	Approximate quantity of cotton consumed (Bales of 180 kgs.)	Average No. of workers employed daily(All shifts)	Total No. of days worked from 1st Sept. 74 to 31st Aug.1975
1	2	3	4	5	6	7	8	9	10
10. Dawn Mills Company ..	42.00	54,836	49,851	14,120	....	....	11,826	1,323	335
11. Digvijay Spinning & Weaving Mills *(formerly Dinshaw Petit Mills).	....	44,064	32,073	2,336	885	854	13,423	2,281	290
12. Edward Textiles Mills* (formerly Edward Sassoon Mills Limited).	....	50,992	30,314	2,140	932	586	12,285	1,817	296
13. (*a*) Elphinstone Spinning and Weaving Mills Co. Unit No. 1	55.00	51,956	38,509	2,688	935	749	13,723	2,380	302
(*b*) Elphinstone Spinning and Weaving Mills Co. Unit No. 2. (formerly Moon Mills)									
14. Finlay Mills ..	120.00	72,224	44,413	4,672	958	844	10,824	3,511	300
15. Gold Mohur Mills ..	120.00	66,844	47,386	2,312	1,142	1,032	12,966	2,602	301
16. Hindoostan Spinning and Weaving Mills Co.	145.80	1,18,624	78,358	7,700	2,489	1,950	49,267	5692	348

17.	India United Mills No. 1* (formerly Jacob Mills).	....	1,08,516	75,783	....	2,130	1,858	29,305	5,245	293
18.	(*a*) India United Mills No. 2* (formerly Alexandra Mill).	....	34,264	23,120	4,310	733	605	44,190	2,203	295
	(*b*) India United Mills No.3* (formerly E.D. Sassoon Mill).	....	95,548	63,336	....	752	648		2,434	295
19.	India United Mills No. 4* (formerly Rachel Mill).	....	....	....	....	1,789	1,705	....	2,190	268
20.	India United Mills No. 5* (formerly Manchester Mill).	....	30,420	26,589	352	684	623	9,167	1,495	268
21.	Jam Manufacturing Co. ..	27.57	49,784	36,011	1,220	1,084	981	14,997	2,536	293
22.	Kamala Mills (formerly Ebrahimbhoy Pabaney Mills).	54.50	62,176	51,091	4,240	1,031	916	18,881	2,681	306
23.	Khatau Makanji Spng. and Weaving Co.	254.36	1,31,080	1,16,262	19,916	1,494	1,112	17,440	5,376	300
24.	Kohinoor Mills Co. (No.1 & 2)	113.40	1,30,208	1,05,027	34,084	1,562	1,373	33,126	5,951	300
25.	Kohinoor Mills Co. (No.3)	....	....	....	6,456	398	306	....	973	301
26.	Mafatlal Fine Spng. and Mfg. Co. Unit No. 2 (formerly Sassoon Spng. and Weaving Mills).	....	62,728	54,962	6,404	1,240	1,053	40,903	2,893	306
27.	Mafatlal Fine Spng. and Mfg. Co. Unit No. 3 (formerly New Union Mill).	....	34,096	32,835	1,460	871	801	17,019	1,846	306
28.	Modern Mills, Mill No. 1 (formerly Mysore Spng. and Manufacturing).	108.41	61,196	55,836	7,324	836	717	12,696	2,135	300
29.	Modern Mills, Mill No. 2									

TABLE No. 8—*contd.*

Name of Mill	Paid-up capital (Rs. in lakhs)	No. of spindles installed (Total)	Average No. of spindles at work	Doubling spindles installed	No. of looms installed (Total)	Average No. of looms at work in the first shift	Approximate quantity of Cotton consumed. (Bales of 180 kgs.)	Average No. of workers employed daily (All shifts)	Total No. of days worked from 1st Sept. 74 to 31st Aug. 1975
1	2	3	4	5	6	7	8	9	10
30. Morarjee Goculdas Spng. and Weaving Co.	204.13	1,03,416	80,577	17,348	1,848	1,576	40,654	4,725	345
31. National Cotton Products*	....	....	....	....	....	....	....	....	....
32. New City of Bombay Mfg.Co.	54.00	56,124	46,664	4,080	614	512	22,203	1,680	344
33. New Great Eastern Spng. and Weaving Co.	43.00	52,688	40,721	....	1,008	834	22,430	2,238	348
34. New Kaiser-I-Hind Spng. and Weaving Mills.*	....	54,424	42,275	5,040	1,199	912	12,470	2,342	291
35. Phoenix Mills (formerly Britannia Mills).	72.00	98,032	82,338	22,744	1,218	897	30,200	4,889	349
36. Piramal Spinning and Weaving Mills.	56.00	56,528	47,680	5,624	1,021	907	13,899	2,517	348
37. Podar Mills (formerly Toyo Podar Cotton Mills).	160.00	49,116	44,876	....	930	921	31,646	2,369	348
38. Prakash Cotton Mills (formerly Seksaria Cotton Mills No. 2).	49.47	62,636	48,348	3,560	830	733	23,474	2,686	340

39.	Raghuvanshi Mills (formerly Kilachand Mills).	45.00	48,452	38,706	5,968	....	....	7,139	1,153	298
40.	Rajesh Textile Mills (formerly Sayaji Mill No. 2)	50.00	53,964	44,625	5,088	984	971	16,130	2,712	302
41.	Ruby Mills (formerly Sorab Mills).	32.00	31,810	18,652	2,992	524	444	6,486	1,116	304
42.	Sayaji Mills No. 2 * (formerly New Prahlad Mills).	57.93	47,672	35,298	628	1,022	902	13,754	2,232	305
43.	Seksaria Cotton Mills * (formerly Currimbhoy and Mohammedbhoy Mills)	....	81,036	45,331	4,420	1,154	927	15,975	3,065	292
44.	Shree Madhusudan Mills	100.00	89,868	64,983	2,996	1,534	1,449	21,193	3,811	302
45.	(*a*) Shree Mukesh Textile Mills (formerly Colaba Textile Mills). (*b*) Mukesh Textile Mills (formerly Jehangir Wadia Mill).	110.00	19,436	17,797	1,612	676	587	7,343	1,466	306
46.	Shreeniwas Cotton Mills (formerly Fazulbhoy Mills)	114.80	1,03,828	75,171	5,150	1,578	1,505	20,638	5,025	346
47.	Shree Ram Mills (formerly Crecscent Mills Ltd.)	200.00	1,22,576	90,358	26,492	1,449	1,223	18,266	4,755	305
48.	(*a*) Shree Sitaram Mills (formerly Sir Shapurji Broacha Mills) (Connaught Mill),. (*b*) Shree Sitaram Mills (New Empress Mill).	60.00	61,788	42,541	1,848	1,155	1,006	19,048	3,520	302

TABLE No. 8—*contd.*

Name of Mill	Paid-up capital (Rs. in lakhs)	No. of spindles installed (Total)	Average No. of spindles at work	Doubling spindles installed	No. of looms installed (Total)	Average No. of looms at work in the first shift	Approximate quantity of Cotton consumed (Bales of 180 kgs.)	Average No. of workers employed daily (All shifts)	Total No. of days worked from 1st Sept. 74 to 31st Aug. 1975
1	2	3	4	5	6	7	8	9	10
49. Shree Textiles* ..	....	....	....	....	....	....	....	....	....
50. Simplex Mills Co. ..	149.69	50,392	30,686	7,432	792	691	21,432	2,325	346
51. Standard Mills Co. ..	412.00	52,028	44,786	6,096	1,619	1,041	23,461	3,435	346
52. Standard Mills (New China Mills). ..	....	51,104	46,691	11,360	781	686	9,415	1,444	351
53. Swadeshi Mills ..	136.00	91,048	54,973	5,040	2,252	1,625	25,513	3,946	301
54. Swan Mills ..	96.00	49,388	41,454	5,788	628	582	10,649	2,311	301
55. Tata Mills ..	150.23	84,512	66,573	9,970	1,939	1,617	28,798	5,086	305
56. Victoria Mills ..	57.28	56,972	28,107	1,852	1,030	773	14,833	2,261	302
57. Western India Mill ..	60.00	23,524	17,210	1,368	1,160	672	13,717	2,314	306
Total ..	4804.02	35,52,754	25,96,889	3,49,782	62,564	52,869	11,03,184	1,67,819	....

*Government-run mills. *Source.—Mill Statement*, 1975, Bombay Millowners' Association.

The cotton textile industry of Bombay comprises principal and subsidiary industries, such as, (*a*) cotton spinning, weaving, shrinking, sanforising, mercerising and finishing of cotton textiles; (*b*) printing, dyeing and bleaching of cotton textiles; (*c*) cotton ginning, cleaning and baling; and (*d*) weaving and finishing of cotton textiles in powerlooms. It would be interesting to analyse the structure of the cotton textile industry as a whole and its subsidiary groups on the basis of the Annual Survey of Industries conducted by the Government of India in the years 1973-74 and 1975-77. The statistics presented below cover the census as well as the sample sectors of the Annual Survey of Industries.

It is attempted to analyse the principal characteristics of the cotton textile industry in Bombay and its place in Maharashtra, as per the Annual Survey of Industries in 1975-77. There were 197 registered factories in Bombay which formed 19.78 per cent of the factories in the State. They provided employment to 1,95,318 persons which formed 65.04 per cent of the textile employment in Maharashtra. It may be pointed out that the Annual Survey of Industries might have underestimated the employment in textile industry in Bombay. This might be due to the method of classification adopted. As per the reports of the Bombay Millowners' Association and other authorities, the industry provides employment to about 2.5 lakh persons. This latter figure appears to be more plausible.

The capital invested in the factories in Bombay was computed at Rs. 3,00,21 lakhs which constituted 73.20 per cent of the Maharashtra cotton mills. The value of output of the Bombay mills was computed at Rs. 6,91,87 lakhs or 77.60 per cent of that in Maharashtra. The value added on manufacture by the mills in this city was as high as Rs. 1,92,06 lakhs or 82.82 per cent of that in the mills in the State.

This analysis brings home the conclusion that Bombay accounts for more than three-fourth of the cotton textile industry in Maharashtra. Though the percentage number of factories in Bombay is not so high, the percentage employment, investment, output and value added on manufacture is very high. It can therefore be safely deduced that the factories in Bombay are very large in size as compared to those elsewhere in the State.

It can be observed that the value of output was about 230 per cent of the invested capital in Bombay.

The figures given represent the annual averages for the respective survey periods.

There were 257 registered factories in Bombay in 1973-74 which declined to 197 in 1975–77. The decline might be due to closure of the marginal units and to the switching over to other products by some units

during the period. We shall subsequently observe that in spite of a decline in number, there was no real decline in the industry. The factories provided employment to 1,89,846 persons including 1,86,489 workers in 1973-74 and to 1,95,318 persons including 1,69,828 workers in 1975-77. Thus the total employment showed an increase in spite of a decline in number of units. The figures of employment show the preponderance of workers in total employees. The factories worked for 6,26,32,890 man-days per annum in 1975-77 period.

The position regarding capital of the factories in Bombay is given below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	85,09.56	1,11,61.92
Working capital	81,36.89	92,52.96
Invested capital	2,50,61.44	3,00,20.87
Outstanding loans	1,33,35.13	1,74,59.07

The outstanding loans were, thus, very much higher than either the fixed capital or working capital. This shows the financial position of the industry.

The structure of costs of production is given below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Wages to workers	82,35.32	1,13,34.94
Total emoluments	1,01,44.49	1,47,17.87
Fuel consumption	23,37.29	57,66.79
Material consumed	2,40,74.19	3,69,71.19
Other inputs	N.A.	59,14.98
Total inputs	3,08,59.16	4,86,52.96

The wage bill and emoluments might have increased over the period under study due to the rise in cost of living index, the dearness allowance to be paid being linked with the cost of living index. The rise in the value of fuel consumption can be attributed to the enormous rise in the prices of furnace oil. The power cut and several restrictions on use of energy had required the mills to resort to costlier self-generated means of power. The rise in costs of materials can be accounted for by the rising cost of raw cotton, the hike in the price of long staple cotton and the price of viscose fibre. The increase in railway freight and in the prices of dyes,

chemicals, stores, spare parts and packing material appear to have contributed to the tremendous rise in the value of inputs in the Bombay industry.[1]

The value of plant and machinery was enumerated at Rs. 2,03,57.11 lakhs and Rs. 2,22,75.16 lakhs, respectively in 1973-74 and 1975-77.

The structure of output of the industry is analysed below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Value of products	4,73,20.63	6,10,73.60
Value of other output	N.A.	81,13.16
Total output	5,03,18.92	6,91,86.76
Depreciation	12,07.47	13,27.58
Value added on manufacture ..	1,82,52.82	1,92,06.22

There was, thus, an all-round rise in the value of products and output over the years under reference. Though a part of the rise could be accounted for by the rise in prices, there appears to be a rise in the output of the industry. The Annual Survey of 1975-77 computed the factory payments at Rs. 28,34.70 lakhs and net income at 1,63,71.52 lakhs per annum.

The above analysis leads us to some deductions. Emoluments comprise a large share of the total cost of production in this industry. It is a labour intensive industry unlike chemicals industry or electrical machinery industry. The value of output was about one and a half times the total inputs. The net income of the Bombay mills was much more than 50 per cent of their capital investment.

It may be useful to elucidate some of the other aspects of the industry.

The sector of mills engaged in cotton spinning, weaving, shrinking, sanforising, mercerising and finishing of cotton textiles is by far the biggest and the most important one among the other sectors of the cotton textile industry from all points of view. It provides employment to about 1.82 lakh persons out of a total of about 1.95 lakhs in the entire industry. The employment in this sector has also registered a rise of about 4,000 in the period 1975-77 over that in 1973-74. Though this rise in employment may not appear to be sizeable, it is significant in view of the measures of rationalisation of production and capital intensive methods of production adopted by some of the mills. The capital investment in this sector of the industry amounts to about Rs. 2,87.25 crores as against the investment of Rs. 3,00.21 crores in the entire industry. The capital investment has also registered a significant rise in 1975-77 over that in 1973-74. Even after granting allowance for rise due to rise in prices,

[1] Bombay Millowners' Association (information supplied by it).

there appears to be real rise in capital investment, fixed capital and working capital during the period of comparison. The value of inputs of this sector also forms a very sizeable proportion of the value of inputs in the entire cotton industry, for example Rs. 4,40.89 crores as against Rs. 4,86.52 crores. The value of products of the cotton spinning, shrinking, weaving, sanforising, mercerising and finishing industry forms almost about 97 per cent of the value of products of the total industry. In respect of the value added on manufacture which is one of the most important aspects in the study of industries, this sector accounts for about 92.65 per cent of the value added on manufacture in the entire cotton textile industry.

It is thus evident that the spinning, weaving, shrinking, sanforising, mercerising and finishing sector of the cotton textile industry is the core sector of the industry.

The next sector second in importance is the one engaged in printing, dyeing and bleaching of cotton textiles. This sector of the industry is comparatively of later origin than the cotton spinning and weaving sector. It received encouragement for growth mainly after Independence of India. Its progress after Independence is attributable to the ban on imports of highly processed and finer qualities of cloth from abroad, and also to the development of technical know-how in the country. The factories in this sector are smaller in size, some of the units being very small in comparison to the spinning and weaving mills. It may roughly said to be an ancillary industry to the cotton textile industry.

In the very nature of things the cotton ginning, cleaning and baling factories form a minor sector of the cotton textile industry. A major proportion of the raw cotton required by Bombay textile mills is processed, ginned and baled in the centres of production of cotton in the districts of Maharashtra and Gujarat. It is more economical for the mills to purchase the ginned and processed raw cotton from outside the city. It is however a historical accident that 14 ginning and baling factories are still in existance in this crowded city where no space is available for location of more composite units warranting a higher degree of technocracy.

Weaving and finishing of cotton textiles in powerlooms is also a very small sector of the cotton textile industry in Bombay. A majority of the units are in the small scale sector and managed on a proprietorship basis. In the last about 20 years, handlooms have been yielding ground to powerlooms on account of the higher productivity, economic viability and the better quality of powerloom cloth. The powerloom sector, though a minor one in Bombay, accounts for a good amount of production, as it enjoys a number of incentives from government as also substantial excise concessions which are denied to the cotton mill industry.

In 1977 there were 24 powerloom factories with a capital investment of Rs. 29.40 lakhs and working capital of Rs. 27.24 lakhs. Though they provided employment to only 595 persons, the value of their out-put was Rs. 2,91.82 lakhs, which meant quite a high per capita out-put per worker. The value added on manufactur', viz., Rs. 48·62 lakhs in 1977, also meant a sizeable value added per capita. The industry however suffers from under-utilisation of installed capacity which is sometime, due to financial constraints, marketability of cloth or inadequate power supply.

There were 12,196 authorised powerlooms in cotton weaving and 12,800 for art silk weaving in Bombay in 1978.

As per report received from the Bombay Millowners' Association,[1] there are 44 cotton spinning and weaving mills owned by 36 mill companies, in the private sector in Bombay, besides the mills controlled by government. Besides, there are eight processing factories, three woollen mills and two art-silk factories, in the private sector which are members of the Association. The Bombay cotton textile mills provide employment to about two and a half lakh persons. The paid-up capital of the mills amounts to about Rs. 70 crores. They produce cloth of every description, both pure cotton and blended fabrics and man-made fibres. The value of production of the cotton mills in the city is estimated at Rs. 15,00 crores per annum, of which products worth about Rs. 250 crores are exported to foreign countries. The Bombay cloth exports are destined to almost all continents of the world. The Bombay cloth enjoys a wide market all over the country.

The Bombay mills obtain raw cotton from Maharashtra as also from the adjoining States of Gujarat, Karnatak and Andhra Pradesh. The mills combine man-made fibres with cotton for production of certain categories of cloth.

The consumption of raw cotton and production of cloth and yarn by the Bombay mills is given below[2]:—

Year	Cotton consumed ('000 bales)	Production of	
		Yarn (in million kgs.)	Cloth (in million metres)
1976 ..	1,246	168	1,069
1977 ..	1,048	138	896
1978 ..	1,126	153	927
1979 ..	1,078	148	863
1980 ..	1,196	167	971

[1] Officially received on 25th February 1982.

[2] *Notes and News*, December, 1981, Millowners' Association.

STATEMENT SHOWING CLOTH PROCESSED BY COTTON TEXTILE MILLS IN BOMBAY CITY[1]

(Figures in million metres)

Year	Bleached	Piece Dyed	Printed	Mercerised	Sanforised	Other Chemically processed	Total processed	Total Production of Cloth
1971 ..	553	300	249	293	111	21	1,392	1,120
1972 ..	567	326	780	257	104	32	1,566	1,243
1973 ..	506	284	250	257	120	34	1,451	1,169
1974 ..	510	225	221	222	80	23	1,281	1,125
1975 ..	497	254	321	257	94	23	1,448	1,074
1976 ..	510	217	281	309	133	23	1,474	1,069
1977 ..	591	273	295	387	100	52	1,798	1,896
1978 ..	623	313	305	410	221	55	1,927	928
1979 ..	585	265	286	329	222	41	1,759	865

Problems of Cotton Textile Industry : The Cotton Textile industry of Bombay, as of India, is facing ominous conditions of stagflation at present. It has a twin problem of rising cost of production and falling demand for cloth. The industry is also facing the problem of consumer resistance. The escalating prices of crude and petroleum products has been a powerful catalyst of the cost hike. The rising cost of raw cotton and the uncertainty of supply have contributed to the rise in production cost of cloth. Though the rise in price of long staple cotton was only 20 per cent in 1979-80, the price of medium staple varieties increased very steeply. The price of viscose fibre which is combined with cotton fibre increased from Rs. 12.72 in 1978-79 to Rs. 18.42 per kg. in 1981.

The industry is suffering from infrastructural deficiencies as well. Power cuts continue to plague the mills which are required to resort to costlier self-generated means of power. The price of furnace oil escalated by 79 per cent in 1981[2] over 1979. Besides the increase in railway freight, the industry is subjected to a rise in prices of dyes, chemicals, stores, spare parts and packing materials. Wages in the industry registered a considerable rise, by about 24 per cent from 1979 to 1981,[3] which have added to the spiral of rising costs.

As per the Millowners' Association, the cost of production of cloth by the Bombay mills has increased by about 30 per cent in 1981 over that in 1979.

[1] *The Indian Textile Bulletin*, Textile Commissioner, Bombay.
[2] Rs. 2,344 per kilolitre in December 1981.
[3] As per Millowners' Association.

The industry is reported to be facing resistance from the consumer who is already oppressed by escalating prices and falling purchasing power of money. Even the Market Research Wing of the Textiles Committee has admitted that any rise in the prices of cloth would adversely affect the off-take of cotton textiles. This oldest organised industry which is also the mainstay of about 2.50 lakh persons is in the grip of a stagflation.

A mention of the role of the Bombay Millowners' Association would not be out of place. It is one of the oldest trade organisations in the country, established on 1st February 1875. It represents 120 cotton mills, eight dyeing and processing factories and three woollen mills from all over the country. All the mills in the private sector in Bombay, viz., 44 cotton spinning and weaving mills, eight processing mills, three woollen mills and two art silk mills, are its members. The Association advocates the cause of the industry in regard to its advancement, safeguarding of interests and arbitration with the government in matters of commercial and fiscal policies relating to the industry. Its services to the Indian cotton industry were quite illustrious in the pre-Independence period when the mills particularly needed protection against cut-throat competition from Japan and England. The textile mills in Bombay owed a lot to this organisation in those days of alien rule.

The role of the Association during the post-Independence era has been more in the nature of establishment of amicable relations among the members, safeguarding their interest, settlement of disputes, advocating the cause of the industry as regards fiscal measures, import and export policies and improvement of infrastructure facilities to the industry.

ART SILK AND MAN-MADE FABRICS

At the beginning of this century there were only two silk mills in Bombay, *viz.*, the Sassoon and Alliance Mill and the Chhoi Silk Manufacturing Mill. The former was situated at Byculla near the Victoria Garden and was established in 1875. It was a joint-stock concern, working with a capital of Rs. 10 lakhs. It was the largest mill in the Bombay Presidency manufacturing silk yarn and cloth for the Indian and Burma Markets. Its annual production was about 70,000 lbs. The progress of this mill was hampered by Japanese competition which captured the Burma and Indian markets. The latter mill was situated at Parel and was established in 1895, and was working with a capital of Rs. 5 lakhs. During the subsequent years conditions of depression and the Japanese competition had affected the production of these mills and they were closed.

The industry in Bombay has made considerable progress after the sixties. During the period 1975–77 as many as 209 factories in Bombay were engaged in spinning, weaving and finishing of man-made fabrics.

The genesis of man-made textile industry in India was due to protective measures given to the cotton textile industry by the Government of India. About three and a half decades ago the Government of India imposed a levy on rayon fabrics imported into the country to curb the severe competition faced by the cotton textile industry through imports of rayon fabrics from Japan. Such tariff imposts on rayon fabrics indirectly induced the importers of such fabrics to import rayon yarn and manufacture the fabrics in the country itself. Thus the beginning of man-made textile industry in India was marked by the setting up of weaving units around the years 1935–37.

The idea of manufacturing rayon in India was first mooted in 1940, when the question was considered by the Board of Scientific and Industrial Research established by the Government of India. The Second World War gave impetus to the development owing to the stoppage of supplies of foreign rayon yarn. In 1944, the Board of Scientific and Industrial Research investigated the project with the object of selecting suitable sites with certain facilities for the erection of rayon plants. After surveying the resources of the country, the Board found that there was considerable scope for establishing such an industry in India.

The first commercial production of viscose rayon filament yarn in the country commenced in July 1950 when a plant was set up by Messrs. Travancore Rayons Ltd. in Kerala. In March 1951 another rayon plant, namely the National Rayon Corporation Ltd. went into production on the outskirts of Bombay with an annual capacity of 2.54 million kg. The Century Rayon, the third viscose rayon plant, went into production in October 1956 near Bombay, with a capacity of 1.82 million kg. per annum.

Besides, the production of viscose tyre cord yarn required for manufacture of vehicular rubber tyres and other industrial products has also commenced.

At the beginning of the Third Five Year-Plan, there was no production of synthetic fibres like nylon or polyester in the country. During this period new units of nylon filament yarn and polyester filament yarn were set up. Of them, the Nirlon Synthetic Fibres and Chemicals Ltd. with a capacity of 0.7 million kg. and the Chemicals and Fibres of India Ltd. with a production capacity of two million kg. of polyester staple fibre per annum were set up during the Third Five-Year Plan in Bombay. The Nirlon Synthetic Fibres and Chemicals Company has a factory at Goregaon, while the plant of the Chemicals and Fibres of India is in

Thane district. The Nirlon Fibres and Chemicals Ltd. has an installed capacity to produce 3,528 tonnes of nylon yarn, 922 tonnes of polyester, 2,190 tonnes of tyre cord and 1,200 tonnes of nylon conveyor belts. The sales turnover of this pioneer concern was as high as Rs. 60.12 crores in 1978-79 and Rs. 71.75 in 1979-80.[1] The Chemicals and Fibres of India Ltd. which is producing polyester staple fibre has an expanded capacity of 4.5 million kg. per annum.

According to the Final Report of the Task Force on Textile Industries, cellulosic fibres accounted for almost 75 per cent of the total production during the Fourth Plan. These fabrics are much cheaper and, to an increasing extent, are based on indigenous rayon grade wood pulp. On the other hand, synthetic fabrics made from nylon and polyester fibre/ filament yarn have been based on imported raw materials such as D.M.T. and caprolactum.

Urban consumers have shown a definite preference for the elegant, economic and easy care man-made fibre fabrics, either in the pure form or in blends, and their use is spreading into the rural areas also. Man-made fibres are being increasingly used for industrial as well as household uses. However, a much more distinct picture of end-uses will emerge when man-made fibres become available in much larger quantities.

Most of the cotton textile mills in Bombay manufacture man-made fabrics besides cotton cloth. The growing popularity of synthetic fabrics, has encouraged the mills to undertake the production of these fabrics. Production of pure silk fabrics is now a very minor section of industry. And there is no sericulture in Bombay. Many of the factories engaged in man-made fabrics produce art silk goods also. The following analysis is aimed only at the synthetic and man-made fabrics industry.

The spinning, weaving and finishing of synthetic fibres, rayons, nylons, etc. has emerged as an important industry during the last about two decades. It is an organised industry with 209 registered factories providing employment to about 20,267 employees. The structure of the industry in Bombay can be studied from the statistics based on the Annual Survey of Industries during 1973-74 and 1975-77 given in Table No. 9.

Though there are many units in Bombay, information about only a few is available. The Orkey Silk Mills at Saki Naka in Bombay produced and sold cloth worth Rs. 36 crores in 1979-80. The L.D. Textile Industries with a plant at Vikhroli is another producer of synthetic fabrics, polyester and blended yarn and knitted fabrics. The turnover of its sales was to

[1] Centre for Monitoring Indian Economy, Bombay, *A State-wise Picture of Large Scale Industrial Activity*, 1981.

the tune of Rs. 7.15 crores in 1979-80. The Beekay Textile Mills in Bombay had a sales turnover of Rs. 5 crores in 1978-79. The other reputed manufacturers in Bombay are the Shakti Mills at Mahalaxmi, Ambika Mills at Mahalaxmi and the Kamala Mills at Lower Parel.[1]

TABLE No. 9

SPINNING, WEAVING AND FINISHING OF SYNTHETIC FIBRES, RAYONS, NYLONS, GREATER BOMBAY, 1973-74 AND 1975-77

(Figures of Rs. in lakhs)

Item	1973-74	1975-77
1. No. of estimated factories (Nos.) ..	180	209
2. Fixed capital	24,97.28	13,89.88
3. Working capital	25,04.15	12,50.92
4. Capital investment	67,99.50	47,70.97
5. Outstanding loans	37,25.12	38,11.33
6. Mandays worked (Nos.)	N.A.	61,19,181
7. All workers (Nos.)	16,338	16,759
8. All employees (Nos.)	20,025	20,267
9. Wages to workers	7,32.27	9,29.12
10. Total emoluments ..	10,69.94	12,90.70
11. Fuel consumed	2,51.21	5,05.20
12. Material consumed	84,00.89	96,50.51
13. Other inputs	N.A.	3,00.80
14. Total inputs	95,45.27	1,31,58.51
15. Plant and machinery	31,10.51	27,64.95
16. Value of Products	1,12,97.70	1,29,92.45
17. Value of other output	N.A.	27,38.71
18. Total output	1,19,89.21	1,57,31.16
19. Depreciation	3,85.17	2,64.58
20. Value added on Manufacture ..	20,58.76	23,08.07
21. Factory payments	N.A.	5,97.97
22. Net income	N.A.	17,10.10

[1] *A State-wise Picture of Large Scale Industrial Activity 1981.*

WOOLLEN MILLS

The first woollen mill known as the Bombay Woollen Manufacturing Company was established in 1888 with a nominal capital of Rs. 4 lakhs. In the same year the Sohrab Woollen and Cotton mill was established with a capital of Rs. 7.5 lakhs. The latter contained 60 looms and 2,160 spindles, and produced blankets, broadcloth, and gray Oxford clothing for army and police. The outturn was nearly two lakh pounds. In 1898, the mill removed its machinery for spinning and weaving of wool, and replaced the same by machinery for cotton. In 1909, there were two woollen mills, namely Bombay Woollen Mill and Coronation Woollen Mill. The Duxbury Woollen Mill, established in 1901, went into liquidation in 1909. The Bombay Woollen Mill produced worsted yarn from Australian wool and wove blankets, serges for army clothing. The Coronation Woollen Mill knitted jerseys and caps from imported worsted yarn.

At present there are 11 woollen mills in Bombay of which three are large. The three large mills are members of the Bombay Millowners Association, and they together account for the major share of production of woollen garments, rugs, blankets and other products.

As per the Annual Survey of Industries there were 9 wool spinning, weaving and finishing mills in Bombay in 1973-74 and 11 mills in 1975-77. They provided employment to 2,473 and 2,373 persons in 1973-74 and 1975-77, respectively. The mills worked for 6,98,949 man-days per annum during the 1975-77 survey period. The position about capital of these companies is given below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	1,71.04	1,64.02
Working Capital	1,91.52	1,27.11
Capital invested	5,70.99	6,47.37
Outstanding loans	4,59.90	4,55.59

The structure of costs of production in the industry in Bombay is given below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Total emoluments	2,33.87	1,32.51
Fuel consumed	24.46	32.09
Material consumed	5,29.57	6,13.83
Other inputs	N.A.	1,68.41
Total inputs	6,58.79	8,14.33

Emoluments appear to form a small proportion of total inputs while raw materials account for 75 per cent of the total inputs. The value of plant and machinery of the mills was estimated at Rs. 2,10.79 lakhs and Rs. 2,62.29 lakhs in 1973-74 and 1975-77, respectively.

The structure of output of the Bombay woollen industry is given below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Value of products	8,39.90	9,90.81
Value of other output	N. A.	74.97
Total output	8,67.09	10,65.78
Depreciation	21.57	21.68
Value added on manufacture	1,86.72	2,29.77

The above figures show that there was a conspicuous rise in production, though there was a fall in employment and emoluments paid. The value of output was a little over 125 per cent of inputs. The value added was over one-fourth of the value of total inputs.

The factory payments by the mills were computed at Rs. 83.55 lakhs and net income at Rs. 1,46.22 lakhs per annum in 1975-77.

Besides the wool spinning, weaving and finishing mills for which the analysis is given above, there were several units engaged in dyeing and bleaching of woollen textiles (27); wool cleaning, baling and pressing (2); wool spinning and weaving other than in mills (3); and other processes (5). The figures in brackets show the number of units as per the Annual Survey of Industries in 1973-74. The dyeing and bleaching of woollen textile units provided employment to 2,106 persons in the same year.

TEXTILE PRODUCTS

The textile products industry of Bombay is an important segment of manufacturing activity, as it satisfies consumer needs and provides employment to more than 22,717 persons. There is also a good amount of caitalp investment in the industry. The value of production and value added on manufacture in this industry make it essential to deal with it separately. This industry is conceived to include manufacture of textile products, such as, knitted apparel; threads, cordage, ropes, twines, nets; embroidery and making of crapes, laces and fringes, carpets, rugs; ready-made garments; rain coats and hats; curtains and mosquito nets; oil cloth and tarpaulin; coir products, and linoleum, pading and upholstering textiles.

The history of this industry in Bombay is traceable to the last quarters of the previous century. At the beginning of this century hosiery was manufactured by five cotton mills and two separate hosiery factories.

They together manufactured about 3,82,000 lbs. of hosiery goods per annum. In 1892 there were three hosiery factories, one of which was closed. In 1896, there were two factories which remained constant even in 1909. The industry in Bombay suffered from keen competition from Japanese and European imports in those days. The obsolete machinery was another handicap which retarded its growth.[1]

The industry received growth stimulus during the First World War when imports were practically halted. The real impetus to growth was however provided by the Second World War during which foreign supplies were curtailed and there was an immense demand from the defence services. The demand for the products, such as, ready-made garments and hosiery, grew very rapidly with growing urbanisation and increasing incomes.

The Dawn Mills in Bombay is a reputed concern producing banians, briefs, vests, jerseys and many other hosiery articles. The industry however comprises many small units. A number of small units making ready-made garments have come into existence. They employ master-tailors and other skilled personnel for stitching garments. They cater to domestic demand and also export a considerable quantity of garments to the countries in Africa, the middle-east, south-east Asia and South America. It is evident from enquiries that many of the units are dependent for their sustained growth on the conditions in the export markets. A good amount of hosiery articles are also exported by the producers in Bombay.

As per the Annual Survey of Industries, there were 201 registered factories in 1973-74, and 375 in 1975-77 in Bombay. These units provided employment to 13,925 persons (including 11,352 workers) and 22,717 persons (including 18,475 workers), respectively in the two survey periods. The factories worked for 64,99,849 man-days per annum in 1975-77. The position of capital of the industry in Bombay is given below :—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	5,68.61	11,27.68
Working capital	7,51.48	10,52.81
Capital invested	1,803.24	31,86.77
Outstanding loans	19,56.84	34,47.08

The above figures show a tremendous progress over a span of 2/3 years. Making allowance for a rise due to higher prices, there must be a considerable rise in real investment.

[1] S. M. Edwardes' *Gazetteer of Bombay City and Island*, 1909.

The structure of costs of production of the units can be studied from the following figures :—

(Rs. in lakhs)

Item	1973-74	1975-77
Wages to workers	3,59.91	6,85.12
Total emoluments	5,17.42	10,11.71
Fuel consumed	56.64	1,60.57
Material consumed	35,08.09	73,03.83
Other inputs	N.A.	25,59.38
Total inputs	42,23.58	1,00,23.78

The above statistics, self-evident as they are, show a huge increase ranging from 200 to 250 per cent. This increase is quite commensurate with the increase in number of factories, employment and capital investment over the period under reference.

The value of plant and machinery was estimated at Rs. 8,88.81 lakhs in 1973-74 and Rs. 17,05.54 lakhs in 1975-77. The structure of production by the factories is analysed below :—

(Rs. in lakhs)

Item	1973-74	1975-77
Value of products	49,08.70	99,15.69
Value of other output	N.A.	22,23.62
Total output	52,23.20	1,21,39.31
Depreciation	77.68	1,58.09
Value added on manufacture ..	9,21.93	19,57.44

Even after making allowance for rise due to rising prices, there was thus a real growth in production by the factories in Bombay. It was quite commensurate with the increase in costs of inputs, employment, capital and number of factories.

The factory payments were computed at Rs. 5,07.23 lakhs and the net income at Rs. 14,50.21 lakhs per annum as per the 1975-77 survey.

The above analysis lead us to some conclusions. Wages constitute a smaller share of the costs of production. The value of output was about 121 per cent of the inputs. This reveals the profitability in the industry. The value added on manufacture was about one-fifth of the inputs, and about 60 per cent of the capital invested in the industry. The net income was about 40 per cent of the capital invested. These factors reveal the high rate of returns on capital.

As per the Annual Survey of Industries separate statistics are available for manufacture of all types of textile garments. The same are included in the analysis of the main industry given above. It may however be stated that manufacture of garments is the major sector of the textile products industry. There were 209 factories providing employment to 13,720 persons in this sector in 1975-77. The production in this sector was also quite large, *e.g.* Rs. 50,73.40 lakhs per annum during the survey period.

The next in importance are the knitting mills, for which only the 1973-74 Annual Survey compiled separate statistics. There were 44 knitting mills which provided employment to 2902 persons in Bombay in 1973-74. Their production was computed at Rs. 13,59.37 lakhs in the same year.

HANDLOOM WEAVING

Handloom weaving is not a very important industry in Bombay. Though there was a large class of weaver craftsmen upto the middle of the nineteenth century[1] the craft has decayed fast with the growth of the mill industry. Another limiting factor has been the paucity of accommodation and the exorbitant cost thereof. The government has however granted protection and patronage for this industry after Independence. The handloom weavers are now recipient of very soft loans, fiscal concessions and marketing aid, through institutional agencies.

There were 391 handloom weaving establishments in the city with a total of 858 looms, of which 773 were in working condition in 1976.[2] All these looms were engaged in cotton weaving. They provided employment to 1,627 persons in the pre-weaving (854) and weaving process (773). Of the total number of handlooms *viz.*, 858, only 444 were in the co-operative sector, the rest (414) being in the private sector. Of the functioning looms (773), 263 were working for co-operative societies and 510 were working independently.

CHEMICALS AND CHEMICAL PRODUCTS

The chemicals manufacturing industry is a multi-product and multi-process industry. From a wide range of basic raw materials it manufactures several heterogeneous products for diverse consumers in many sectors of the economy. Very often, within the industry the products of some factories form the raw material for others. There are also a number of cross linkages. A wide range of inorganic chemicals, such as sulphuric acid, hydrochloric acid, soda ash and caustic soda are used in bulk quantity as process chemicals by other industries, such as, iron and steel,

[1] For details refer earlier pages in this chapter.

[2] *Growth of Industries in Maharashtra*, Govt. of Maharashtra.

cement, paper, cotton textiles, synthetic textiles, soaps and detergents. The industry is of vital importance to all sectors of the economy. It contributes to general economic development in diverse directions, such as, fertilisers and pesticides for agrarian progress, drugs and pharmaceuticals for life saving, basic chemicals and petro-chemicals for industrial growth, paints and dyestuffs for varied uses, soaps and cosmetics to meet consumer necessities.

The chemical industry is of recent origin. Though it started in a modest way in the early decades of this century, it was only after Independence that there was real growth. A sulphuric acid plant established in 1913 in Bombay was a forerunner in the field. The chemical industry however registered a faster growth in Bombay after 1961. The first petrochemical unit was started in 1966, and over the years, there has been a steady growth of this industry.

Although of recent growth, the Indian chemical industry has been one of the fastest growing sectors of the Indian economy, with an overall growth rate of 17 to 18 per cent per annum. This growth rate is spectacular in comparison to the rate of general industrial growth which is estimated to be about 7 to 8 per cent.

Today this industry ranks fourth in India after textile, iron and steel and engineering in terms of output. It contributes as much as 7.4 per cent of the total gross output and 8 per cent of the net output turned out by all manufacturing industries in the country. Though it is not a labour intensive industry it provides employment to 1.30 lakh workers.

To review the growth of the industry in the past, the Tariff Board of 1928 described the chemical industry as a key industry. Prior to the outbreak of the First World War, most of the chemicals and products were imported. There was some expansion during the period preceding Second World War. The war provided a considerable stimulus to its growth. There was a three-fold increase in the production of miscellaneous heavy chemicals too during the war period. It is noteworthy that the British Government did not encourage its growth by any kind of incentives or assistance. After Independence the industry set on the path of progress. The real stimulus to growth of the chemical industry came from the implementation of the five-year plans which gave it a big boost, as also from the growing demand for chemical products from other sectors of industry. It experienced an accelerated growth rate during the sixties, and has now become an important foreign exchange earner. The establishment of oil refineries and steel plants in the country facilitated supply of bye-products which are useful for the growth of chemical industry. Thus benzene and other bye-products from coke ovens, naphtha from refineries, and ethyl alcohol from sugar factories, became the important

raw materials for the chemical factories. The growth of petrochemicals gave a further impetus to this industry.

The early units were mainly based on alcohol as feedstock in some cases, and imported penultimates in the case of dyestuffs and pharmaceuticals. When the petroleum refineries based on imported crude were established, their bye-products provided aromatics as feedstock. They gave an impetus to the growth of organic chemical industry, and hence, several large factories, such as, National Organic Chemical Industries Ltd. (NOCIL), Union Carbide, Herdillia Chemicals and Hindustan Organic Chemicals (HOC) were established in Bombay and its periphery.

The major portion of the chemicals industry in India is situated in Maharashtra and Gujarat. The Bombay and Thane industrial complex has been a congenial ground for its growth. The reasons for the present localisation of the industry as above are: (*i*) availability of raw materials, (*ii*) nearness to refineries, (*iii*) infrastructure facilities, (*iv*) an established market for pharmaceuticals, dyestuffs, chemicals and plastics, and (*v*) availability of a cadre of technicians and technocrats. The two crude oil refineries, and other companies such as NOCIL, HOC, Union Carbide, Herdillia, several caustic soda, chlorine and sulphuric acid plants, Rashtriya Chemicals and Fertilizers Limited, Colour Chem, Amar Dye Chem, IDI, and several other plants in Bombay and its environs have contributed massively to the growth of this industry therein. The exploration of the Bombay High oil and gas fields has opened up fresh opportunities for a very accelerated growth in the near future. The gas separation plant at Uran and the proposed petrochemical complex in the area nearby will further open fresh opportunities for the growth of the industry.[1]

The chemical industry of Bombay comprises the manufacture of a wide variety of chemicals and products thereof, which can conveniently be divided into various groups, such as, inorganic chemicals, organic chemicals, petrochemicals, agricultural chemicals, drugs and pharmaceuticals, dyestuffs, spirits, liquor preparations, etc. The industry is highly heterogeneous in the sense that it includes large volume low-cost products, such as heavy chemicals, low volume high-cost products such as drugs and pharmaceuticals, and fine chemicals. It can generally be characterised as science-based and technology oriented, liable to a high rate of obsolescence, and highly capital intensive. It is in no way a labour intensive industry like the cotton textile industry. The element of entrepreneurial risk is by no means small. Another characteristic of this industry is environmental pollution which is also a major problem for Bombay.

[1] The *Indian Textile Journal*, December, 1981 (*New Vistas in Organic Chemical Industry*).

The first Chemical factory in Bombay viz., the Kemp and Company was established in the year 1868 which started manufacturing drugs and pharmaceuticals. It was followed, as per available record, by the Zandu Pharmaceutical Works in 1910, which undertook production of ayurvedic and allopathic preparations. The Tata Oil Mills, which has now a number of factories in India was established in 1917 in Bombay for the manufacture of soaps and oils.

The Brumer, Mond and Company incorporated in 1923 as a private company, for the manufacture of chemicals and a wide range of textile auxiliaries, gave an important lead to the chemical industry in Bombay. This company was changed in 1929 to Imperial Chemical Industries (India) Limited, and in 1964 to I.C.I. (India) Private Limited. In March 1978 it was converted into a public limited company, and was renamed as Crescent Dyes and Chemicals Limited. It was followed by incorporation of the H. J. Foster and Company in 1924 as a private company, which was subsequently renamed as Glaxo Laboratories in July 1968 which became a public limited company. It is now one of the leading manufacturers of a wide range of medicinal preparations, sophisticated antibiotics, life-saving drugs, vitamin preparations, infant foods, basic drugs, laboratory chemicals, veterinary products, etc. The May and Baker was incorporated in 1928. It is another celebrated company engaged in the manufacture of basic drugs, a wide range of pharmaceuticals, photographic specialities and other chemicals. Being initially incorporated as a private company in 1928, it was converted into a public limited company in 1979. The other pioneering concerns in the chemical industry of Bombay were the Hindustan Lever which was incorporated as a private limited company in October 1933, and the Indian Oxygen which was founded initially in Bengal in 1935. The Chemical, Industrial and Pharmaceuticals Laboratories established in 1935 in Bombay also belongs to the category of pioneering concerns. It manufactures drugs, pharmaceuticals, fine chemical steroids, hormones, alkaloids and natural products.

From these beginnings, the industry has made tremendous progress, with plants springing up right in the heart of the city as also in the suburbs, covering practically all its major branches. The development of this industry has directly contributed to the all-round progress of industrialisation not only of this city but also of the entire country.

The progress of the industry has been particularly remarkable since the last two decades. Some of the segments within the industry are not only undergoing a process of self-propelling growth, but also have a potentiality to export the products on a considerable scale. With the fast growth of the petrochemicals industry and the growing demand for

modern chemicals, drugs and pharmaceuticals, the industry's future indeed looks very bright.*

As stated earlier the growth of the chemicals and chemical products industry in Bombay is mainly marked from 1923. It received tremendous encouragement during the Second World War and the post-war era. The spurt in industrial growth and acceleration of demand for chemicals and drugs by other industries gave an impetus to this industry from 1943 onwards. The difficulties in imports of the chemical products on account of the World War also made it imperative on the part of the Government to encourage the growth of the chemical industry indigenously. Thus, the increase in effective demand for chemical products from other industries and consumers, in the face of shortage of supply due to war, initiated a process of self-propelling growth of the industry in cities like Bombay and Calcutta.

The stage of the Bombay chemical products industry is such that the city now possesses technocrats of high quality who can man chemical enterprises in diverse fields of pharmaceuticals, fertilizers, petrochemical down-stream plants, designing of alcohol-based industries as well as in technologies for plant protection chemicals.

The growth of the industry from 1923 to 1957 in Bombay is shown in the statement given below. Figures in brackets show percentage of

Chemical Industry in India, 1976-77

1. No. of Factories	4,52
2. Investment (Rs. lakhs)	30,28,17
3. Employment	3,73,314
4. Inputs (Rs. lakhs)	31,88,34
5. Output (Rs. lakhs)	42,63,07
6. Value added on manufacture (Rs. lakhs)	8,88,83
7. Net income generated (Rs. lakhs)	7,31,20

(*Source.*—C.S.O. Annual Survey of Industries, 1974-75 to 1976-77.

Growth-rate of Chemical Industry During 1951-73

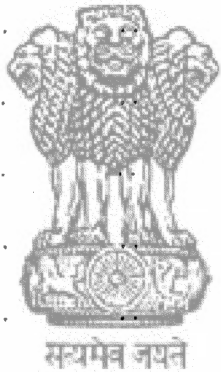
Period	Compound Growth rate of Chemical Industry	Compound Growth rate for all Industries
1951-55	9.1	7.3
1956-60	10.7	6.6
1961-65	9.0	9.0
1966-73	8.9	4.5

Source.—Kothari's Economic and Industrial Guide of India, 1980-81.

employment in chemicals and chemical products industries to total factory employment in each respective year :—

Factories in chemicals and chemical products Industry and Employment, Greater Bombay, 1923-1957[1]

Year	No. of working factories	Employment in reporting factories
1923	9	759 (0.4)
1925	20	5,471 (2.6)
1930	22	6,289 (3.4)
1935	30	5,163 (2.7)
1940	36	3,535 (1.5)
1945	75	7,561 (1.9)
1950	146 (16)	11,465 (3.0)
1955	191 (18)	14,275 (3.5)
1957	195 (15)	15,855 (3.7)



The principal products of the chemical industry in Bombay are listed below:—

Dyes of Naphthal series, fast bases, stabilized azoices, beta naphthal, BON acid, dyestuff intermediaries, auxiliary chemicals for plastics, textile, leather and other industries; metal chemicals, oxygen, acetylene and nitrogen gases; stabilizers and additives for P.V.C. and other polymers, leather auxiliaries, and polyester/polymerie type of plasticizers; toilet goods; P.V.C. films and sheet laminates, entruded acrylic and high impact polystyrene sheets and a wide range of art paper and chrome paper; alkaloides and natural products; fine chemicals, synthetic organic dyes, plastic moulding powders, and industrial resins; basic chemicals, an extensive range of textile auxiliaries and heat treatment salts; agro-chemicals; Fluoro-chloro-methane gases, Hydrofluoric acid, aluminium

[1] D. T. Lokadawala op. cit.

flouride; pesticides, fungicides, fumigants, veterinary products; ethylene oxide, condensalts, sulphonated products, ammonium compounds, emulsifiers for insecticides and pesticides; soaps, detergents, edible fats, glycerine, cattle and poultry feeds, nickel catalyst, fine chemicals; polyninyl acetate dispersions; industrial and medical gases, such as, oxygen, nitrous oxide, nitrogen, argon, dissolved acytelene, high altitude oxygen pure gases, liquid oxygen explosives, electrodes, anasthetic and analgesic oxygen therapy equipment, and medical pipeline accessories, air separation gas plants and associated cryogenic equipment; photographic chemicals, rubber chemicals and rubber chemical intermediates; hydrogen peroxide and sodium perborate; glucose powders, calcium gluconate, ferrous gluconate; nylon filaments yarn, polyester filament yarn, nylon tyrecord and tyre fabrics, organic and inorganic hormones, rectifiers, breweries, spirits, liquors, wines; polystyrene plastic moulding material, styrene monomer, ethyl benzene, industrial alcohol, potable liquors; synthetic rubbers, solid P.V.C. conveyor belting; paints, varnishes, synthetic enamel, red oxide, decorative paints and a number of other organic and inorganic chemical products. The above list is by no means complete.

The pharmaceutical and drugs wing of the industry in Bombay manufactures all kinds of pharmaceutical preparations, insulin injections, anti-dysentery drugs, anti-rheumatic drugs, vitamin preparations, antihistamine drugs, antacids, infant foods, basic drugs, laboratory chemicals. Many of the companies manufacture the most sophisticated of broad spectrum antibiotics, oxytetracycline, anti-diabetics, chloropropamide, anti-T.B. drugs; protein hydrolysate, tranquilisers, steroids, amino-acids, and a wide range of life-saving drugs. The Bombay industry is not behind in ayurvedic and homoeopathic medical preparations.

In view of the importance of the drugs and pharmaceutical industry, it is dealt with separately in this chapter.

The Annual Survey of Industries which is the most authoritative data on the structure of the chemicals and chemical products industry in Bombay furnishes a two-digit data for the manufacture of chemicals and chemical products (except products of petroleum and coal). The A.S.I. also furnishes three-digit data for seven sectors of the industry as under:—

1. Manufacture of industrial organic and inorganic chemicals and goods such as acids, alkalies and their salts, gases like acetylene, oxygen, nitrogen, etc.
2. Manufacture of fertilisers and pesticides.
3. Manufacture of paints, varnishes and lacquers.
4. Manufacture of drugs and medicines.

5. Manufacture of perfumes, cosmetics, lotions, hair dressing, tooth paste, soaps in various forms such as synthetic, detergent, shampoos, shaving products, cleaners, washing and scouring products and other toilet preparations.

6. Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylons, teryelene except glass.

7. Manufacture of chemical products not elsewhere classified (including photo-chemicals, sensitised films and papers).

The A.S.I. statistics for the chemicals and chemical products industry and its seven various sectors for the survey periods of 1973-74 and 1975-77 which are given in Table No. 10 are self-evident and need no particular comments. It may be clarified that the statistics for the survey periods are annual averages within the periods.

It may be very interesting to analyse the principal characteristics of the chemicals and chemical products industry in Bombay on the basis of the Annual Survey of Industries of 1975-77.

The chemicals and chemical products industry in Bombay comprised 454 registered factories which formed 49·02 per cent of those in Maharashtra in 1975-77 survey period. They provided employment to 53,479 persons which constituted 51·24 per cent of the employment in the industry in State. The invested capital in the factories in Bombay was to the tune of Rs. 4,09,17 lakhs or 47·20 per cent of that in Maharashtra. It is noteworthy that the capital investment in this industry in Bombay was about 135 per cent of that in the cotton textile industry, and was very much higher than that in any of the seven major sectors of industry in Bombay. This brings home the fact that it is a highly capital intensive industry requiring very sophisticated machinery.

What is true as regards capital investment is also true about the output and value added on manufacture in this industry. The output of the Bombay industry was computed at Rs. 8,60,37 lakhs or 53·25 per cent of that in the State. The value of output of this industry was higher than that of any other major sector of industry in the city. The value of output was about 125 per cent of that of the cotton textile industry; about 200 per cent of the rubber, plastic, petroleum and coal products industry; about 400 per cent of the basic metal and alloys industry; about 400 per cent of the metal products industry; about 375 per cent of the machinery and machine tools industry; about 312 per cent of the electrical machinery, apparatus and appliances industry and about 500 per cent of the transport equipment industry in Bombay.

The value added on manufacture in this industry was computed at Rs. 2,02,76 lakhs or 53·32 per cent of that in Maharashtra. It was higher by Rs. 10,76 lakhs than that in the cotton textile industry. As compared

TABLE No. 10

CHEMICALS AND CHEMICAL PRODUCTS (EXCEPT PRODUCTS OF PETROLEUM AND COAL), GREATER BOMBAY

Item	Chemicals and Chemical products (except products of petroleum and coal)	Basic industrial organic and inorganic chemicals and goods such as acids, alkalies and their salts, gases like acetylene, oxygen, nitrogen, etc.		Fertilizers and Pesticides		Paints, Varnishes and Lacquers	
				1973-74	1975-77	1973-74	1975-77
	1975-77	1973-74	1975-77				
1. No. of estimated factories.	454	44	48	44	19	65	66
2. Fixed capital (Rs.) ..	1,91,62,53,000	6,51,25,000	9,46,09,000	32,52,77,600	76,06,32,000	4,79,31,100	5,29,77,000
3. Working capital (Rs.)	1,84,72,66,000	5,59,40,300	10,09,94,000	10,14,66,300	28,50,35,000	10,52,20,000	11,59,50,000
4. Capital Investment (Rs.)	4,09,17,33,000	11,68,46,100	19,06,09,000	49,07,17,600	1,05,76,44,000	18,02,04,800	20,29,77,000
5. Outstanding Loans (Rs.)	1,61,86,52,000	5,92,63,200	7,76,76,000	10,69,32,400	17,81,62,000	10,95,04,600	11,02,21,000
6. Man-days worked ..	1,63,24,323	N.A.	13,69,082	N.A.	10,62,653	N.A.	14,44,556
7. All workers ..	33,615	2,652	2,648	2,272	1,733	3,517	2,870
8. All employees ..	55,479	4,191	4,172	3,363	3,102	5,670	4,750
9. Wages to workers (Rs.)	32,56,74,000	1,40,86,600	2,23,38,000	1,12,80,100	1,57,93,000	1,76,54,000	4,67,62,000
10. Total emoluments (Rs.)	74,84,17,000	3,00,57,800	5,45,64,000	2,43,98,200	3,98,47,000	4,64,13,500	11,74,64,000
11. Fuel consumed (Rs.)	39,91,14,000	2,43,14,300	6,02,59,000	4,74,08,000	12,19,24,000	53,95,700	1,04,13,000

TABLE No. 10—*contd.*

Item	Chemicals and Chemical products (except products of petroleum and coal)	Basic industrial organic and inorganic chemicals and goods such as acids, alkalies and their salts, gases like acetylene, oxygen, nitrogen, etc.		Fertilizers and Pesticides		Paints, Varnishes and Lacquers	
	1975-77	1973-74	1975-77	1973-74	1975-77	1973-74	1975-77
12. Material consumed (Rs.).	4,68,74,75,000	13,24,60,100	25,61,52,000	40,95,33,200	53,39,49,000	36,64,54,900	43,85,08,000
13. Other inputs (Rs.) ..	1,30,82,16,000	N.A.	3,40,57,000	N.A.	9,29,62,000	N.A.	15,68,99,000
14. Total inputs (Rs.) ..	6,39,48,05,000	16,83,53,800	35,04,69,000	48,37,11,700	74,88,35,000	38,79,35,300	60,58,20,000
15. Plant and machinery (Rs.).	4,31,19,71,000	11,49,40,500	2,34,70,62,000	1,62,89,300	57,93,17,000	6,44,45,400	5,80,58,000
16. Value of products (Rs.)	7,59,93,43,000	25,44,74,700	50,80,93,000	68,51,11,200	90,22,91,000	48,18,92,700	61,03,13,000
17. Value of other output (Rs.).	1,00,43,11,000	N.A.	1,65,73,000	N.A.	4,40,11,000	N.A.	13,76,83,000
18. Total output (Rs.) ..	8,69,36,51,000	27,15,03,100	52,46,66,000	66,42,26,900	94,63,02,000	48,62,42,700	64,79,96,000
19. Depreciation (Rs.) ..	18,12,92,000	89,56,800	2,20,47,000	7,56,98,200	3,15,29,000	66,35,900	79,61,000
20. Value added on manufacture (Rs.).	2,02,75,55,000	9,39,92,600	15,21,50,000	10,48,17,000	16,59,38,000	9,16,71,500	13,42,14,000
21. Factory payments (Rs.)	22,82,05,000	N.A.	1,17,91,000	N.A.	2,36,03,000	N.A.	1,91,83,000
22. Net income (Rs.) ..	1,79,93,50,000	N.A.	14,03,58,000	N.A.	14,23,35,000	N.A.	11,50,30,000

TABLE No. 10—*contd.*

Item	Manufacture of Drugs and Medicines		Manufacture of perfumes, cosmetics, lotions, hair dressing, tooth paste, soaps in any form, synthetic, detergent, shampoos, shaving products, cleaners, washing & scouring products and other toilet preparations .		Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylons, teryelene except glass		Manufacture of Chemical products not elsewhere to classified (including pho chemicals sensitised films & papers)	
	1973-74	1975-77	1973-74	1975-77	1973-74	1975-77	1973-74	1975-77
1. No. of estimated factories.	129	162	41	40	129	29	103	84
2. Fixed capital (Rs.) ..	31,39,28,100	38,25,90,000	20,00,68,100	28,54,41,000	29,49,90,200	25,41,89,000	6,81,98,100	7,43,49,000
3. Working capital (Rs.)	53,37,07,800	61,14,72,000	28,40,19,500	30,53,31,000	38,16,35,200	26,77,95,000	10,96,56,500	15,52,22,000
4. Capital investment (Rs.).	87,45,70,300	1,06,84,13,000	53,82,72,900	82,54,41,000	56,02,73,000	50,84,65,000	16,26,32,500	19,91,60,000
5. Outstanding loans (Rs.).	29,87,58,300	43,37,84,000	20,42,19,100	56,29,95,000	16,53,17,500	9,72,16,000	12,88,50,400	13,45,09,000
6. Mandays worked ..	N.A.	68,68,686	N.A.	26,97,609	N.A.	14,84,371	N.A.	11,98,882
7. All workers ..	15,045	14,204	6,373	6,242	4,992	2,847	3,012	2,570
8. All employees ..	21,013	24,380	8,293	8,112	6,826	4,304	4,380	4,057
9. Wages to workers (Rs.).	10,43,06,900	13,31,46,000	5,71,94,700	6,03,16,000	2,64,49,100	2,72,03,000	1,30,73,900	1,65,71,000
10. Total emoluments (Rs.)	21,21,73,300	32,05,81,000	10,00,18,400	11,14,38,000	5,78,66,100	5,95,87,000	2,83,73,100	4,00,32,000
11. Fuel consumed (Rs.)	2,16,44,700	4,40,34,000	2,44,14,200	6,38,34,000	5,18,63,000	8,01,05,000	60,73,500	1,27,84,000

TABLE No. 10—*concld.*

Item	Manufacture of Drugs and Medicines		Manufacture of perfumes, cosmetics, lotions, hair dressing, tooth paste, soaps in any form, synthetic, detergent, shampoos, shaving products, cleaners, washing & scouring products and other toiletpre parations		Manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylons, terlene except glass		Manufacture of chemical products not elsewhere classified (including photo chemicals sensitised films & papers)	
	1973-74	1975-77	1973-74	1975-77	1973-74	1975-77	1973-74	1975-77
12. Material consumed (Rs.).	94,48,97,100	1,29,03,59,000	1,12,39,88,500	1,34,74,14,000	55,24,00,300	45,22,24,000	19,81,04,900	32,13,72,000
13. Other inputs (Rs.) ..	N.A.	36,50,78,000	N.A.	22,98,15,000	N.A.	8,85,27,000	N.A.	23,17,19,000
14. Total inputs (Rs.) ..	1,07,61,06,900	1,69,94,71,000	1,19,11,50,200	1,64,10,63,000	68,63,49,500	62,08,55,000	48,87,58,500	56,58,75,000
15. Plant & Machinery (Rs.).	34,75,90,100	41,07,07,000	22,91,09,200	28,41,88,000	1,80,98,98,500	53,74,23,000	6,23,40,400	8,34,82,000
16. Value of products (Rs.)	1,59,22,63,400	2,23,07,85,000	1,42,07,06,900	2,06,04,86,000	1,05,29,17,800	77,37,89,000	55,77,80,300	46,58,68,000
17. Value of other output (Rs.).	N.A.	26,14,24,000	N.A.	12,33,96,000	N.A.	5,03,22,000	N.A.	23,92,08,000
18. Total output (Rs.) ..	1,63,60,11,000	2,49,22,10,000	1,43,98,60,100	2,18,38,82,000	1,07,76,83,400	82,41,11,000	59,01,30,300	70,50,76,000
19. Depreciation ..	3,74,24,800	4,26,31,000	1,82,17,900	2,30,52,000	4,91,42,300	4,44,69,000	69,03,800	83,96,000
20. Value added on manufacture (Rs.).	52,24,79,300	75,01,08,000	23,04,92,000	51,97,68,000	34,21,91,600	15,87,87,000	9,44,68,000	13,08,06,000
21. Factory payments ..	N.A.	8,68,91,000	N.A.	4,47,91,000	N.A.	2,43,82,000	N.A.	1,60,59,000
22. Net income ..	N.A.	66,32,17,000	N.A.	47,49,77,000	N.A.	13,44,05,000	N.A.	11,47,46,000

to the six other major sectors of industries, the value added in this industry was approximately three to five times.

It can therefore be deduced that although the cotton textile industry is the largest industry by virtue of the higher employment provided by it, the chemicals and chemical products industry is the largest in Bombay as regards number of registered factories, invested capital, value of output and value added on manufacture. It is thus the most important sector of manufacturing activity.

It is borne out by the reports of many companies that the rate of returns on capital in this industry are very high, and that it is a prosperous avenue of production.It may be interesting to give an account of the various sectors of the industry, separately. It is attempted to furnish the history of growth of each sector, products, importance in the industrial economy, problems of growth and an account of a few large scale manufacturing companies, the information for which is readily available. It is clarified that all the principal manufacturers are not mentioned simply because of constraints of information about them. The account is also by no means exhaustive.[1]

The chemicals and chemical products industry can broadly be classified into two classes, namely, heavy chemicals and fine chemicals. Among heavy chemicals, sulphuric acid and the chemicals based on it constitute an important group from the industrial point of view. Another group is composed of alkalies, such as various forms of soda and the compounds based on it. It is attempted below to give an account of the growth of the various sectors of the chemical industry in Bombay *vis-a-vis* the growth of the industry in India. An attempt is also made to trace the history of the various industry sectors in Bombay. As far as possible the names of the pioneering units are given.[2]

SULPHURIC ACID

The production of sulphuric acid is usually regarded as a barometer of industrial progress. This was the first branch of the heavy chemical industry in Bombay. It is a basic heavy chemical of great industrial and economic importance. Its economic significance lies in the fact that large quantities of sulphuric acid are essential in the manufacturing of important products such as fertilizers, various acids, explosives, dyestuffs, artificial silk, petroleum refining, rayon, staple fibres and numerous industrial operations. It is therefore a *sine qua non* for the growth of industrialisation.

The history of the sulphuric acid industry in India can be traced to the year 1853 when a plant was established in Bengal. The history of the industry in Bombay city commences with the incorporation of the Eastern

[1] The names of units for which information is readily available are given.
[2] Ibid.

Chemical Company, Bombay, in 1913, just on the eve of the First World War. The industry passed through an era of difficulties in the inter-war period, particularly due to shortage of sulphur. The industry grew rapidly during and after the Second World War. The war efforts of the Government and growing industrialisation provided the stimulus. It expanded further at the end of the First Five-Year Plan. Production was handicapped to some extent due to non-availability of sulphur which is entirely imported. The expansion of fertilizers and rayon industries during the first two plans made it imperative to take measures for expansion of this industry. The Fertilizer Corporation of India, Trombay (now known as Rashtriya Chemicals and Fertilizers) was granted an additional capacity for production of sulphuric acid at Bombay during the Third Plan. A unit in the private sector in Bombay was licensed for fabrication of sulphuric acid plants by the Government of India during the Third Plan[1] The Fertilizer Corporation of India is now one of the important manufacturers of sulphuric acid. The demand from rayon units in the vicinity of Bombay is required to be met from the Bombay units as also outside manufacturers.

CAUSTIC SODA

Caustic soda constitutes an essential raw material in the manufacturing of soap, rayon, paper, cotton textiles, rubber and vegetable oils. The caustic soda industry is comparatively of recent origin. It originated in India at Mettur in Tamilnadu State in 1941. The pioneer in this industry in Bombay was the Calico Mills Chemical Division which was established during the Second Five-Year Plan. At the time of its establishment, this firm was one of eight units in the country which produced caustic soda for sale.

The demand for this industry's products grew very high during the Third Plan period. In order to meet the growing demand, additional capacities were granted during the Third Plan. The protective duties in force upto May 1951 were withdrawn by Government.[2]

CALCIUM CARBIDE

Calcium Carbide is another important chemical of industrial significance. The Calico Mills Chemical Division, Trombay was a pioneering enterprise in the production of Calcium Carbide in Bombay as of caustic soda. The unit started production in the first quarter of 1961 with an annual capacity of 6,705 tonnes of calcium carbide.

The principal raw materials for production of calcium carbide are lime-stone and coke. Though these materials are amply available, their

[1] *Handbook of Commercial Information*, 1963, Department of Commercial Intelligence and Statistics, Government of India.

[2] Ibid.

quality is much below the mark in India. This adversely affects the quantity of production. Recently however this deficiency is removed by using petroleum coke which is available in the requisite quantity from the petroleum refineries at Trombay. The availability of petroleum coke at Bombay has brightened the prospects of the industry in Bombay.

HYDROCHLORIC ACID AND NITRIC ACID

Next to sulphuric acid, hydrochloric acid and nitric acid are considered the most useful for industrial purposes. In the initial stages of development of the modern chemical industry in India, these acids were manufactured by the producers of sulphuric acid. The dependence on sulphuric acid in the standard process and the limited supply of sulphuric acid in comparison to demand were a great constraint in the manufacture of hydrochloric and nitric acids. The problem of chlorine utilisation in alkali manufacture was another handicap. These handicaps led to the gradual adoption of the synthetic method of manufacture of hydrochloric acid. The consumption of this acid rose with its increasing use as a substitute for sulphuric acid in the fertilizer and other chemical industries. The Fertilizer Corporation of India, Trombay, plant was included in the Third Plan for the manufacture of nitric acid and nitro products. This plant is now a large producer in this field in Bombay.

PHOSPHORIC ACID

There was absolutely no production of phosphoric acid in India, prior to the Second World War and it was wholly imported. The Star Chemicals of Bombay was a pioneering concern in India which undertook production of phosphoric acid in 1943 under assistance of the Directorate General of Supply, Government of India. The chemical was very essential for the defence forces, but its supply from foreign sources was stopped due to the war. Hence, the importance of the production of the Bombay firm, which was able to meet the requirements of the acid at that time. After the cessation of the war the unit found it difficult to withstand foreign competition, and applied to the Government of India for tariff protection. The Government granted tariff protection to the industry by converting revenue duty into a specific protective duty in April 1947. The protection was however withdrawn in 1949 after review of the economic condition of the industry.[1]

BICHROMATES

Sodium and Potassium bichromates are utilised as raw materials in cotton textile dyeing and chrome tanning of leather. The bichromates manufacturing industry in India originated only during the Second World War, prior to which these chemicals were imported from Western countries.

[1] *Handbook of Commercial Information*, 1963.

The war gave a great impetus to this industry. After the war, however, the demand for bichromates declined, and the industry was faced with the problem of surplus production capacity. The Government of India helped survival of the industry by granting tariff protection in December 1946 which was continued for long and was subsequently withdrawn from January, 1959.

In 1961, there were three units in Bombay manufacturing bichromates, namely, Hindustan Chemical Works, Golden Chemical Works and Pioneer Chromate Works. These units were the pioneers in the field in Bombay.[1]

HYDROGEN PEROXIDE

Besides the pharmaceutical industry, hydrogen peroxide forms an important auxiliary chemical in the modern textile industry as a bleaching agent and oxidising agent for chemical reactions. It was entirely imported upto as late as 1955-56. The National Peroxide Limited, Bombay, incorporated in 1953, was the first firm to manufacture this chemical in India. It started production for the first time in India in 1956 with technical and financial collaboration with a British firm. The annual production capacity of the plant was 720 tonnes at the time of its inception, which was expanded to 3,046 tonnes per annum at the end of 1961.[2] The same concern started a new plant for production of hydrogen peroxide by another process during the Third Plan.

MAGNESIUM CARBORATE

Magnesium carborate production is of very recent origin in India. Although the pioneer in the industry is not known, one firm in Bombay was licensed for the manufacture of magnesium carborate with a production capacity of 6,000 tonnes per year during the Third Plan.[3]

BUTYL ACETATE

This chemical is largely used as a solvent for natural gums and synthetic resins. The demand for it was met entirely from imports. The Union Carbide India Limited, a celebrated petro-chemicals manufacturing concern in Bombay, established for the first time in 1961, a unit in Bombay with an installed production capacity of 1,256 tonnes of butyl acetate. The unit produced 252 tonnes of the product in 1961 initially.[4]

ETHYL ACETATE

This is an important acid from the industrial point of view, and it is used mainly as a solvent in paints, varnishes and lacquer industries. The Excel Industries, Jogeshwari in Bombay (1941) undertook its

[1] Ibid.
[2] Ibid.
[3] Ibid.
[4] Ibid.

production during the Second Five-Year Plan. In 1961, the Union Carbide India also emerged in the field of ethyl acetate in Bombay.[1] The growth of the automobile industry and other industry sectors requiring paints and lacquers gave an impetus to this industry during the last about 20 years.

HYDROQUINONE

In India, this chemical is mainly used in the film industry and in photography, although it has diverse uses in the developed countries. Formerly it was entirely imported from foreign countries. Commercial production of hydroquinone was started in the country for the first time in Bombay in 1949. The annual production capacity of the sole unit, namely, Kesar Sugar Works, Bombay, was 15 tonnes in 1950, while its actual production was 3.4 tonnes in the same year. Realising the difficulties of the industry the Government of India granted tariff protection to this industry in 1951 which was discontinued from January 1960.[2]

STEARIC ACID AND OLEIC ACID

These fatty acids have attained considerable commercial importance because of their use as raw material in several industries, such as, rubber and rubber products, cotton textiles, cosmetics and soaps, grease, lubricants, paints and automobiles. Although the name of the pioneering concern in this industry is not known, there were three firms in Bombay which manufactured these acids on a small-scale during period of the Second World War. In order to encourage development of the industry the Government of India granted it tariff protection in 1948 which was later on withdrawn from 1963.[3] It appears that one of the units went out of production in about 1949-50, for which no information is available. Later a large concern in Bombay mainly engaged in the manufacturing of toilet goods and vegetable oils, also undertook the production of stearic acid and oleic acid on a small-scale in the mid-fifties.

BUTYL ALCOHOL

Butyl Alcohol is an important petrochemical belonging to the organic intermediates group. It is used in the manufacture of esters, and as a solvent for resins, lacquers and varnishes. The production of butyl alcohol was undertaken for the first time in India by the Union Carbide India in Bombay in 1961. The annual installed capacity of this pioneering enterprise was 684 tonnes, while the actual output was 152 tonnes of butyl alcohol in 1961.[4] With this modest beginning the production by the concern expanded considerably in subsequent years.

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[1] Ibid.
[2] Ibid.
[3] Ibid.
[4] Ibid.

METHYL ALCOHOL

Methyl alcohol also known as methanol is another important petrochemical belonging to the organic intermediates group. From the industrial and commercial point of view this is a very important petrochemical which is essential in the manufacturing of acrylic resins, terylene and other chloromethanes, as well as many pharmaceutical preparations. It is also used in substantial quantity as an auxiliary in jet and turbine aircraft fuel. It has its utility in industry as a solvent, and as a denaturant for rectified spirit. The Petrochemical Committee of the Government of India in its report of 1963 considered that in view of the prospective demand for this chemical it would be desirable to set up two new units, each with a production capacity of 60 tonnes per day, located near the main consumption centres of Bombay and Calcutta.[1]

PHTHALIC ANYHYDRADE

This is also an important petrochemical belonging to the organic intermediates group. A rapid rise in demand for this industrial chemical is anticipated in view of the accelerated development of plastics, dyestuffs, and allied resin industries in and around Bombay. The industry is of very recent origin in India, and there was not a single unit in the country, prior to 1961.

Besides a unit in Bombay, there was only one other unit in the country *viz.*, the Durgapur Steel Plant in the public sector, licensed for the production of phthalic anyhydrade. This fact establishes the pioneering nature of the unit in Bombay.

Phthalic plasticisers were produced for the first time in the country in 1961 by the Indo-Nippon Chemicals Limited, Bombay. The annual installed capacity of this unit was 900 tonnes, while its actual production was 139 in 1961, the year of its inception.[2]

POWER ALCOHOL AND INDUSTRIAL ALCOHOL

In recent years, substantial development of the alcohol based industries has taken place throughout the world. A chemical, known as industrial alcohol, is now widely used as a basic material for the manufacture of diverse organic chemical products, particularly drugs and pharmaceuticals, dyestuffs, high polymers, solvents, insecticides and synthetic rubber.

Modern distilleries for potable alcohol were established in the country in the last century. The industry developed more rapidly in the United Provinces, present U.P. and Bihar.

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[1] Ibid.
[2] Ibid.

Production of industrial and power alcohols in India commenced after the indigenous sugar industry came into being in 1932. Starting primarily as a rectified spirit industry, it made steady progress when alcohol found wide ranging applications. Acute scarcity of petrol during the Second World War, due to the requirements of the defence services and curtailment from producer countries on account of war, stimulated the use of alcohol as a motor fuel, even without the admixture with petrol. This has always been a scarce commodity in relation to demand for it. And hence, the stimulus for its growth in the post-war period.

According to the Report of the Committee on Industrial and Power Alcohol appointed by the Government of India (1956), the manufacturing of polyethylene based on alcohol had already been taken up by two firms, one in Bombay city and another in Calcutta.[1]

Now more than 60 per cent of the total production of alcohol in India is used for industrial purposes. It is an important industrial raw material, chiefly because the country does not have enough petroleum crude. More attention has come to be focussed on it in recent days as a probable substitute for motor gas. It has the advantage of easy-obtainability through a simple and low energy technology, *viz.* fermentation. Ethyl alcohol is readily convertible into ethylene and acetaldehyde both of which are important starting points for synthetic chemicals. Utilisation of alcohol therefore enjoys considerable preference.

The Polychem Ltd., with factories at Goregaon and Chembur in Bombay and at Nira in Pune, is a large producer of alcohols, potable liquors, polystron, styrene and monomer. The sales of this concern were of the tune of Rs. 19.82 crores in 1978-79.[2]

ORGANIC CHEMICALS

Much of the development of the organic chemical industry has come about in the last 50 years. "The growth has been particularly rapid since 1960, catalysed by the establishment of the steel plants in the country. Production of benzene, butyl acetate, diethylene glycol, ethylene, monoethylene glycol and polyethylene glycol registered over hundred per cent increases in the period 1970-78. The industry also expanded into new avenues and production of D. M. T., pare-xylene, ortho-xylene, vinyl chloride and caprolactum, started in the last decade and has since gained momentum."[3]

The Hoechst, Dyes and Chemicals, incorporated in 1958 as a private limited company and later converted into a public limited company in

[1] Ibid.
[2] *A State-wise Picture of Large Scale Industrial Activity*, 1981.
[3] *Kothari's Economic and Industrial Guide*, 1980-81.

1961, has been a large producer of polyninyl acetate dispersions, dyestuffs and organic and inorganic chemicals. Its Mulund plant had a turnover of Rs. 51.88 crores in 1980.

CRUDE COAL-TAR

Coal carbonisation was introduced in India about 125 years ago by the two gas companies in Bombay and Calcutta for supply of town gas. The Bombay Gas Company which went into production in 1866 started coal carbonisation. The Bombay gas works is one of the few principal sources of coal-tar in India. The Bombay Gas Company is said, by the *Manufacturers' Directory* (1962), to be the only producer of cresols in India. Cresol is a tar acid which has an industrial application, which is required to be imported from abroad because of its very small production in Bombay.

PHENOL

This petrochemical constitutes an important raw material in the pharmaceutical, dyestuffs, explosives, and insecticide manufacturing industries. The synthetic resin industry is the main consumer of phenol. Precise information about production of phenol is not available. According to the book *Chemical Industrial Undertakings Licensed* (1962), issued by the Indian Chemical Manufacturers Association, Calcutta, two firms in Bombay city were granted licences towards the end of the Second Plan for the production of phenol.

PETROCHEMICALS INDUSTRY

The petrochemicals industry has emerged as the principal supplier of chemicals of vital economic significance which have a bright future in enrichment of the country. Although petrochemicals began to be manufactured in India in 1961, the petrochemicals industry emerged in the country as an important sector after the mid-sixties only. The first integrated petrochemical complex started functioning at Trombay in Bombay in 1966 under management of the Union Carbide India Ltd., a private sector enterprise. This pioneering concern has established a Naphtha plant at Trombay with an annual consumption of 60 thousand tonnes of Naphtha. It also manufactures carbons, midget electrodes, industrial chemicals, dry cells and batteries for radio and telecommunication purposes. The lead given by the Union Carbide was followed by a giant plant by the National Organic Chemical Industries Ltd. in the Thane-Belapur Complex, which was started in January, 1968. This concern with its office in Bombay and the plant on the outskirts of the city has an average annual intake of 225 thousand tonnes of Naphtha. It is one of the biggest petrochemicals manufacturers. The Indian Petrochemical Corporation Limited at Baroda, by far the biggest petrochemicals complex,

was another celebrated enterprise in the field of petrochemicals. The available capacities for what is called, the building blocks in these three units by 1977 are given below:—

(Thousand MTPA)

Item	IPCL	NOCIL	NCIL	Total
1. Naphtha Input	450	225	80	755
2. Ethylene	130	60	22	212
3. Propylene	78	35	6	119
4. Butadiene	22	7	..	29
5. Benzene	23	14	6	43

Petrochemical based products have truly redeemed the scarcity of traditional raw materials required for food, clothing, medicines, household utilities and shelter for man. No other industry has opened up newer vistas for the welfare and prosperity of the people as the petrochemicals industry in view of the diverse products, and it is indeed, contributing a great deal to the growth of industrial potential and national wealth. This industry occupies a vital position in the industrial development of the country in view of the employment potential and the contribution to the gross national product. It has opened up large opportunities for employment. The sectors that benefit most from the indirect generation of employment by the petrochemical industries are textiles, plastics, other consumergood industries, pharmaceuticals, transport, engineering, rubber products, agriculture, etc.

The traditional measure for evaluating the growth of the petrochemicals industry in any country, is the rate of growth of ethylene production. The compound annual rate of growth of ethylene production in India between 1970 and 1978 had been around 8.2 per cent against the 5 per cent rate recorded by the manufacturing sector as a whole.[1] The rate of growth of petrochemicals depends largely upon the growth of capacities and production in the industries which utilise petrochemicals as feedstocks. The major determinants for market demand are plastic pipes, plastics for agricultural applications, plastic packaging, PVC sheets, plastic cables, plastic footwear, thermosetting polymers, expanded polystyrene, synthetic rubber, rubber chemicals, synthetic fibres, drugs and pharmaceuticals, dyestuffs, paints, synthetic detergents and pesticides. In view of the fact that the petrochemical industry was established only in the late sixties, the growth of the final products industries was limited. Secondly according to some experts, the applications of petrochemicals have

[1] *Petrochemicals from Bombay High*, Maharashtra Economic Development Council.

mainly centred around the urban areas because of paucity and high prices of petrochemicals. This is especially true in the case of synthetic fibres and yarn. The industry is also heavily taxed. Considering all these limitations the growth rate recorded by the industry in the seventies is quite significant.[1]

As a result of this growth and the versatility of petrochemicals, the demand for petrochemicals has been steadily increasing despite limitations. In fact, the demand outstripped production by 1977.[2]

The ultimate importance of petrochemicals and their derivatives to the economy lies in their backward and forward linkages, the additional investment they generate and the consumer needs they help to satisfy. It is, therefore, instructive to know their end uses. Styrene-butadiene rubber is used in the manufacture of tyres and tubes, footwear, moulded and extruded goods, etc. Polystyrene is used in packaging consumer durables, household and stationery articles. Expanded polystyrene is used in industrial insulation, cold storage, construction and defence sectors. LDPE is used in agriculture, mouldings, wires, cables and pipes manufacture. PVC is used to manufacture pipes, fittings, footwear, cables and sheets. Ethylene oxide is used in the manufacture of ethylene glycol, emulsifiers, rubber chemicals and pharmaceuticals. Isopropyl alcohol is used in pharmaceuticals, pesticides, refining of special oils and chemical auxiliaries. Acetone is used in pharmaceuticals, cellulose acetate yarn and fibre, rubber chemicals, paints, thinners, resins, explosives and chemical auxiliaries. Polypropylene finds its use in manufacture of consumer and industrial articles, staple fibre, pipes. Acrylonitrile is used in acrylic fibre, nitrile rubber. Phenol is used in resins, pharmaceuticals, wire enamels, pesticides and synthetic tanning agents. Phthalic anyhydride is used in plasticizers, dyestuffs and resins.

Petrochemicals industries are thus intimately connected with plastics processing and ancillary industries, synthetic fibre industry, synthetic rubber industry, rubber chemicals, pesticides, drugs and pharmaceuticals, dyestuffs, paints and synthetic detergents industries. Besides, the setting up of petrochemicals plants and down-stream units generates investment in capital goods and intermediate goods industries connected with design and engineering, equipment, construction, etc. This versatile nature of the petrochemicals industry provided a powerful stimulus behind its rapid growth.

The raw materials, known as feedstocks, in this industry comprise Ethane, Propane, Naphtha and Gas Oil. These can be obtained from petroleum, coal, alcohol and other hydro-carbon resources. It may be noted that petrochemicals can be produced even from non-petroleum

[1] Ibid.
[2] Ibid.

sources. In India the raw material used is Naphtha which is obtained after refining crude petroleum. As a result of repeated price hikes of crude oil by the OPEC countries, however, the Government of India raised the price of Naphtha which has resulted into high costs of production of petrochemicals. Naphtha is also used as a major feedstock for fertilizer industry which is a priority industry. Hence, the supply of Naphtha to the petrochemicals industry is restricted. It is in this context that the fortunate discovery of oil and associated gas at Bombay High and oil and free gas at Bassein oil fields, assume tremendous economic significance. The petrochemicals industry is, therefore, very anxious to augment its supplies of feedstocks from this alternative source.

The new situation emerging from the discovery of domestic crude oil and natural gas in the Bombay High and Bassein fields enables an almost autonomous development of petrochemicals, with a little competition between the petrochemical industry and other industries in the supply of suitable hydrocarbons. There is not only an abundant availability of a wide variety of hydrocarbon raw materials that are well suited for a much more diversified petrochemical industry, but also a wide variety of natural products that integrate with petrochemicals to yield a comprehensive range of chemicals that can profoundly affect almost every sector of the economy.

Presently, Bombay High is producing crude oil at the rate of 6 million tonnes per year and is due to reach the peak rates of 12 million tonnes after 1983. Drilling is continuing and hopes are high also for the Bassein field and in the Tapi structures. It is estimated that a daily production of over 20 million cubic metres of gas per day is possible for nearly 30 years.[1] Based on these discoveries plans are being made to set up two gas crackers in the vicinity of Bombay and in Gujarat.

The crude oil reserves at Bombay High are estimated to be of the order of over 750 million tonnes spread over an area of about 1,500 sq. km. From the oil fields Associated gas is also available which is at present being consumed by the Fertilizer Plant at Trombay and by the Tata Thermal Power Station. It has opened up opportunities to have petroleum feedstocks in sufficient quantity to support a large-scale economic and viable petrochemicals industry, utilising optimum technology and product mix.

Though Naphtha is a good feedstock for petrochemicals, its rising cost, supply constraints and its utilisation for the fertilizer manufacturing industry have inflicted constraints on its utilisation as an economic feedstock. All hopes for future petrochemical projects, therefore, centre on the use of Associated gas and Natural gas from Bombay High

[1] For details *see* Petroleum Industry.

and Bassein fields. The gas has the following potential uses in order of priorities.[1]

1. Feedstock for fertilizers.
2. Feedstock for petrochemicals.
3. Production of LPG domestic fuel.
4. Fuel for power generation.

Of the above uses, Government has already completed the project for recovering the butane-propane fraction for LPG production at Uran in the environs of Bombay. The methane fraction of the gas is being piped to Bombay for fertilizer manufacture and to the giant power generation project of the Tatas at Trombay. The ethane and higher fractions are not being utilised as yet. It has been suggested by many committees of experts that optimal utilisation of the Associated gas should be planned to lead to the highest economic benefit. If the gas is utilised for the production of petrochemicals, the value additions would become very high and would have a high multiplier effect on other downstream activities.

The Government of India has formulated plans for utilisation of the gas for the production of fertilizers, LPG and petrochemicals. The Petroleum Ministry has planned to construct 11 fertilizer plants of which two would be in Maharashtra, three in Gujarat, and two each in Madhya Pradesh, Rajasthan and U.P. All the ten plants will use the Bombay High Gas transported through pipelines. The LPG plant using some four million cubic metre of Associated Gas from Bombay High is being incorporated at Uran. If India can set up petrochemical plants based on gas, she would save considerable foreign exchange now spent on imports of petrochemicals. The Bombay High crude is highly rich in aromatics and the gas is ideal for production of petrochemicals. A gas cracker unit is proposed to be established in the environs of Bombay. This unit is proposed to crack about 5 lakh tonnes of ethane-propane mixture to produce 3 lakh tonnes of ethylene and 40 thousand tonnes of propylene per year.[2]

As a result of the opportunities opened up by the Bombay High, the private sector petrochemicals manufacturers in Maharashtra (particularly in Bombay) have applied for expansion of their existing manufacturing facilities. Since a petrochemicals complex, even if sanctioned by Government, would take at least 6 years for commissioning, during which period the Associated gas waste may continue unabated, they have put up an interim proposal for effective utilisation of this gas till the Usar complex,[3] near Alibag, is commissioned. The State Government has supported the proposal.

[1] D. N. Daruwala, "Petrochemicals—Opportunities and Challenges" (article).
[2] D. N. Daruwala, op. cit.
[3] The Usar petrochemicals complex is expected to cost about Rs. 900 crores.

The interim proposal envisages a marginal modification of the separation and LPG plant of ONGC at Uran to enable separation of about one lakh tonnes of ethane-propane gas per annum which would be supplied to the existing gas cracker of Union Carbide India Ltd., at Trombay. According to the proposal the Union Carbide Plant can be readily adopted to switch back from cracking one lakh tonnes of Naphtha to cracking one lakh tonnes of ethane-propane fraction from the Associated gas. This can be done at an estimated cost of Rs. 25 crores. This cracker would be in a position to produce about 55 thousand tonnes of ethylene per annum. The ethylene would be supplied to the other existing manufacturers of LDPE and HDPE to enable them increase their existing production capacity. The proposal involves an investment of only Rs. 6 crores by ONGC in the public sector, and the rest of the investment would come from the private sector. This proposal, it is claimed, would not only reduce the period of sub-optimal use of Bombay High Gas, but also would substitute existing imports and generate revenue to the public exchequer to the tune of Rs. 26 crores per annum. The increase in the GNP as a result of implementation of this proposal is estimated around Rs. 80 crores per annum.

The proposal is under consideration of the Government of India. The present plans of the Government are to set up a 4 million cubic metres per day capacity gas fractionation plant at Usar with LPG extraction facilities.[1]

ALKALI INDUSTRY

The alkali industry is a basic industry as it provides industrial raw materials for other industries. The growth of this industry in India is of recent origin. Caustic soda manufacturing which is an adjunct of the alkali industry had its first footing in India in 1941. The industry is essentially a product of the Second World War. There were 32 caustic soda plants in the country in 1974 of which one was located in Bombay. Till 1967 indigenous production of caustic soda was not sufficient to cater fully to the domestic demand, and imports had to be resorted. Since 1970 however there had been practically no imports as indigenous production was sufficient to meet the internal demand.

Besides caustic soda, the alkali industrial unit in Bombay, manufactures chlorine, caustic acid, hydrochloric acid and other chemicals. Since all these chemicals are industrial raw materials, the demand for them is naturally dependent upon the progress in the consuming sectors. The industry presents serious problems in regard to location, choice of process, fuel and raw material supplies. It is a capital intensive industry.

[1] *Petrochemicals from Bombay High*, Maharashtra Economic Development Council, Bombay.

Till recently the industry had to import a substantial part of the machinery and equipment. The extent of dependence on imports has however diminished progressively with the establishment of indigenous fabrication facilities, and at present only about 20 per cent of the equipment is required to be imported. Salt, mercury, graphite anodes, etc., are the main raw materials required for the industry.

The installed capacity of production of caustic soda in Bombay was 28,950 tonnes in December 1973, while the actual production was 14,100 tonnes in 1971: 26,900 in 1972 and 27,000 in 1973. The major handicaps faced by the industry are the increase in power tariffs and shortage of power which result in decrease in production. The Alkali Manufacturers' Association of India, formed in 1960, helps the firms in all matters connected with the development of the Industry as well as its day-to-day problems.

DYESTUFF INDUSTRY

Dyestuffs are essential raw materials for cotton, silk, art silk and woollen industries. A well established dyestuff industry is a pre-requisite for the development of chemical industries and textiles. It acts as an important link in the chain of other essential chemical industries such as, inorganic chemical industry and coal-tar industry on the one hand, and the fine chemical and pharmaceutical industry, explosives, synthetic resins, plastics, etc., on the other. This industry can be diverted to the production of some defence materials in times of war.

The production of dyestuffs and their intermediaries in India is mainly a development of the post-independence period. Earlier these products were almost entirely imported from the U.K., Germany, Switzerland and the U.S.A. The foundation of the organised Indian dyestuff industry was laid in 1940 by the establishment of a small-scale plant by M/s. Associated Research Laboratory at Bhatghar near Pune. The British Government of India appointed a committee to prepare a plan for development of dyestuff industry in India. It was not however until 1952 that the production of dyestuffs started on a large scale when M/s. Atul Products Ltd. commissioned their plant at Atul for production of dyes and sulphur black in collaboration with American Cynamid Company. This was followed by the establishment of several large, medium and small-scale concerns, some of them with foreign collaboration for the manufacture of a variety of dyestuffs and their intermediaries.

The growth of this industry in India during the last 25 years appears to be spectacular as compared to many other industries during this period. The growth of the Indian industry compares better with that in the other developing countries.

At present most of the dyestuff and intermediate plants are located in Maharashtra and Gujarat. This is attributable to the fact that the necessary basic chemicals, such as acids and alkalis are produced in this area and the major consuming industry, namely, textile is also located in this area. The other buyers of dyestuffs, *viz.*, pharmaceutical and plastic factories are also located in this area.

The prospects of growth of this industry in Bombay city were however not very bright. This is mainly because dyestuff plants cause air and water pollution as they eject very strong effluents and gases. The Government have, therefore, decided to encourage dispersal of this industry from Bombay. The Kalyan industrial complex has however attracted very big dyestuff plants which could be attributed to the availability of infra-structure and nearness to Bombay. The Amar Dye Chem and Indian Dyestuffs Industries are located in this region. The registered offices of these concerns are in Bombay.

The industry was granted tariff protection in 1954 which helped its further development. Indian dyestuffs are now exported to many countries in the world except probably China and East European Countries.

The data based on Annual Survey of Industries are not separately available for dyestuffs industry. The data constraint forbids from analysing the structure of this important industry.

PESTICIDES

Pesticides began to be used on a large scale only after Independence. The first unit for manufacturing BHC was set up in 1952. India is however now one of the two largest producers of pest control chemicals in Asia. A majority of the pesticide manufacturing units are in the small-scale sector which produce formulations, such as, dusting powders, wettable powders and emulsified concentrates. The production of these essential chemicals in the country is much less than the demand, as the consumption has increased considerably. The use of pesticides in the field of agriculture began slowly with the realisation that expansion of production depends to a large extent on the prevention of loss due to pest and disease infestation. It was only during the Second Five Year Plan that the use of pesticides was given importance. The propagation of high yielding varieties and hybrid varieties, however, brought new pest problems hitherto of no economic significance. This increased the demand for pesticides. Realising their importance in the country's agricultural economy, the public sector also has taken a considerable interest in development of this industry.

The growth of this industry in India in terms of average production in tonnes was 7 per cent per annum from 1970-71 to 1975-76, while

the rate of consumption of pesticides rose by 29 per cent per annum during the same period.*

Many of the raw materials like benzene, chlorine, methyl and ethyl alcohol, methylamine, phosphorous, pentasulphide, etc. are available locally though not in adequate quantities. Further growth of the petro-chemical industry in and around Bombay and Baroda will increase availability of raw materials.

The Excel Industries with its factories at Jogeshwari and Amboli in Bombay and at Roha in Raigad district is a large manufacturing concern. It manufactures a variety of pesticides and fungicides. Another famous name in this industry is the Rallis India with plants at Bombay and Belapur (Thane district) on the outskirts of Bombay. The Muller and Phipps, a foreign collaboration concern, manufactures some kinds of insecticides in its plant at Vile Parle. It is a large-scale manufacturer.

As per the *Wealth of India*, the Bombay Chemicals Private Ltd., Bombay, had an annual production capacity of 96 thousand gallons of 2 per cent pyrethrum extract, an important pesticide. The Standard Chemicals and Pharmaceuticals Company at Bombay is another producer of insecticides. As per the book *Chemical Industrial Undertakings Licensed* (1962), a firm in Bombay was licensed to produce sulphuric insecticides with a production capacity of 1016 tonnes, divided equally into colloidal sulphur and wettable sulphur. Further details of the firm are not available.

The pesticides and fungicides manufacturing industry in and around Bombay awaits a good future. The propagation of improved agrarian techniques, intensive methods of cultivation and changing crop pattern with an emphasis on commercial crops are bound to accentuate the demand for these products. In fact the wide propagation of hybrid crops warrants a regular use of pesticides on a large scale. These factors will further strengthen the demand for the products of this industry. The expanding growth of petro-chemicals in and around Bombay will supply the necessary raw materials for this industry on a rising scale at cheaper rates.

FERTILIZERS

Commercial fertilizers are categorised into straight fertilizers and mixed fertilizers. Straight fertilizers are sub-divided broadly into Nitrogen fertilizers, Phosphate fertilizers and Potash fertilizers. The first Indian super-phosphate factory was set up in 1906 in Madras State. In 1924 another super-phosphate factory was set up in Bombay[1]. The total production and consumption of fertilizers was very meagre according to Western Standards. The conservative peasant who is inherently very

* Dr. P. K. Narayanswamy "Pesticides Industry".

[1] *Handbook of Commercial Information*, 1963.

slow in adoption of scientific cultivation could hardly be persuaded to utilise fertilizers. Naturally there was no impetus to the growth of the industry. The apathetic attitude of the British Indian Government also did not provide any encouragement. It was only after Independence that there was a wide realisation of the importance of fertilizers. The progressive Government after Indian Independence provided the necessary impetus to the growth of the industry and for popularising fertilizer use.

The decade ending 1961 had been a period of intensive efforts to plan the production, distribution and utilisation of fertilizers. Expert Committees were appointed by the Government of India, and experts were invited from abroad to advise on the problems of the industry. The fertilizer industry to-day constitutes a major public sector enterprise in India. At present there is an acute shortage of both nitrogenous and phosphatic fertilizers, and efforts are being made in the public and private sectors to step up their production.

At the commencement of the First Plan (1951-52), there were two principal units manufacturing ammonium sulphate in the country, one of which was located in Mysore and another in Kerala.[1] Single superphosphate prepared from imported rock phosphate was the principal source of phosphatic fertilizers in India prior to the First Plan period. Of the 14 plants manufacturing super-phosphate, seven were located in the former Bombay State in 1951.[2]

It was in the Third Five-Year Plan that a giant fertilizer plant was established at Trombay in Bombay which was intended to produce mainly urea and nitrophosphate in addition to ammonium sulphate. The Rashtriya Chemicals and Fertilizers at Trombay, an undertaking of the Government of India, is now one of the few giant projects of its kind in India. It has an installed capacity to produce 99,000 tonnes of urea per annum. It however, exceeded its installed capacity and manufactured about 103,959 tonnes in a latest year. Its installed capacity as regards production of complex fertilizers is three lakh tonnes, its actual production amounting to about 255,510 tonnes in a latest year. The enterprise has an installed capacity to produce 3.61 lakh tonnes of ANP, the actual production being about 199,558 tonnes. The value of sales amounted to Rs. 95.80 crores in 1978-79 and to Rs. 174.10 crores in 1979-80.[3] Formerly known as the Fertilizers Corporation of India, the Rashtriya Chemicals and Fertilizers is ideally situated as regards availability of feedstocks, sources of energy, transport facilities, etc. In recent years it has diversified its production. Besides, fertilizers, it produces a good amount of sulphuric acid, elemental sulphur and many

[1] Ibid

[2] *Handbook of Commercial Information, 1963.*

[3] *A State-wise Picture of Large Scale Industrial Activity, 1981.*

other basic chemicals which are so very essential for other industries. The importance of sulphuric acid lies in the fact that its transport is hazardous, and it is required in bulk in Bombay. Elemental sulphur is not available as a mineral in India.

The discovery and explorations of the Bombay High have illuminated the hopes and aspirations of the Indian nation. The Bombay High enabled the Government to review the entire feedstock policy for fertilizers. The nitrogenous fertilizer plants in the country are based on a variety of feedsotcks, such as, natural gas, Naphtha, fuel oil, coal and coke oven gas. The initial development of nitrogenous capacity in the country was based primarily on indigenous feedstocks like coke, wood, etc. With the availability of surplus Naphtha in the local refineries and discovery of natural gas, production capacity was augmented in the sixties. After discovery of the Bombay High Oil and gas, the Government could review the entire feedstock policy, and formulated guidelines in this respect. Accordingly Naphtha is used sparingly only on considerations of exigencies and economies, while use of fuel oils is being restricted. Primarily gas is to be used as a fertilizer feedstock, as it is most economical. It has been estimated that on the basis of availability of associated gas from Bassein, about 11 fertilizer plants, each with a capacity of 1,350 t.p.d. (tonnes per day), can be established.[1]

The expansion programmes of the Trombay Fertilizer Plant and the proposed Thal Vaishet Fertilizer Project are sanctioned on the basis of Bombay High and Bassein resources only.[2]

The explorations at Bombay High, thus, promise a very bright future for the expansion of the Trombay Fertilizer Plant and development of the Thal Vaishet Project near Bombay. The original authors of the Trombay Plant, though might not have visualised the promises of the Bombay High, now deserve national compliments.

The Maharashtra Agro Industries Corporation which is a Government undertaking is also engaged in fertilizers production in Bombay besides other centres in Maharashtra.

As per the Annual Survey of Industries in 1975-77 there were 19 registered factories in Bombay engaged in the manufacture of fertilizers and pesticides. They provided employment to 3,102 employees including 1,733 workers. The capital invested in the industry was Rs. 1,05,76.44 lakhs. The value of total inputs of the industry was to the tune of Rs. 74,88.35 lakhs, while the value of total output was Rs. 94,63.02 lakhs. The value of products of the industry stood at Rs. 90,22.91 lakhs, the value added on manufacture being Rs. 16,59.38 lakhs.

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[1] *Petrochemicals from Bombay High*, Maharashtra Economic Development Council, Bombay.

[2] Ibid.

The detailed statistics of the fertilizer and pesticides industry, the two sectors being grouped together, are furnished in Table No. 10.

The data enable us to study the structure of this industry in Bombay.

AGRO-INDUSTRIES

Agro-industries are an important sector from the point of growth of the national economy. Besides providing employment, their importance lies in providing a valuable infrastructure for agricultural economy, but for which the latter is bound to stagnate. Though agriculture is the oldest industry in this country, the growth of agro-industries is only of recent origin. They started developing only after Independence. These industries are mainly engaged in manufacture of chemical fertilisers, pesticides, insecticides, fungicides, agricultural implements and a variety of equipments.

The Rallis India Limited manufactures a range of pesticides, solid as well as liquid, and has an installed capacity to manufacture about 28,260 tonnes of pesticides per annum. Unfortunately however this is a declining industry in Bombay. As per a government study,[1] the number of factories in this sector in Bombay declined from 966 in 1961 to 544 in 1976. This meant a decline by 43.7 per cent over a period of about 16 years. The employment in agro-industries also declined from 2,62,957 in 1961 to 2,06,954 in 1976, which meant a decline by 21.3 per cent.

PHARMACEUTICAL INDUSTRY

The pharmaceutical industry is a vital sector of the national economy, and its products and services are an essential input in our programme of health-care. It has a record of achievements unmatched by very few other industries in India. Measured in terms of quantity and quality of growth, the pharmaceutical industry is in the front rank of India's science-based industries. It is today a vertically integrated manufacturing sector producing almost all essential drugs, and meeting the country's requirements of formulations in full and of bulk drugs very substantially. It is pertinent to note that among the developing countries, India has the distinction of having the largest and the most modern pharmaceutical industry. It has now reached a stage which signifies a level of operation comparable to international standards of production, technology, management and quality.

The industry is mainly concentrated in the western region, particularly in Bombay and Baroda. The principal reason for the quicker growth of this industry in this region is that the development of the chemicals and petrochemicals industries took place in the last about twenty years,

[1] *Growth of Industries in Maharashtra*, Directorate of Industries, Maharashtra State.

and hence the basic raw materials became available nearby for the manufacture of medical preparations. The development of petrochemical complexes at Bombay and Baroda has made available basic raw materials required for organic intermediates like ethylene, propylene, Benzene, toluene, xylene etc. Most of the raw materials needed for the production of antibiotics by fermentation processes are available nearby. Synthetic drugs need quite a number of basic organic chemicals which are used in the manufacture of organic intermediates. These are made available by the petrochemical complexes around Bombay and Baroda in a great measure.

Independent India inherited, in August 1947, a pharmaceutical industry which had not come of age. The industry had behind it a chequered history since its establishment in the early years of this century. Alternating periods of growth and recession, of advance and setback constituted that history.

But it was also a history which had an enterprising beginning, in that the industry owed its establishment to the vision and efforts of three dedicated persons, Acharya P. C. Ray in Calcutta, and Mr. T. K. Gajjar and Rajmitra B. D. Amin in Western India (Baroda). They struggled against odds in the same way as the pioneers of shipping and steel industries did in the initial stages. In particular, the pioneers of the pharmaceutical industry had to overcome such difficulties as public prejudice towards allopathic medicine, lack of government patronage, foreign competition and non-availability of component raw materials. All the same, the use of chemo-therapeutic agents for the control and treatment of diseases was firmly established, thanks to the efforts of organic chemists who discovered drugs like aspirin and barbiturates. Other significant developments at about the same time, such as establishment of the Haffkine Institute and King's Institute in 1904, Central Research Institute in 1905 and Pasteur Institute in 1907, and commencement by British scientists in India of research in tropical diseases like malaria, cholera, smallpox and typhoid, fostered a climate favourable for the growth of the nascent pharmaceutical industry in its first decade of existence.

Fillip given by World Wars : The industry received a fillip during World War I as the local demand for allopathic medicines increased steeply and imports were almost completely cut off. Production of caffein from tea dust and of surgical dressings was established during this period which also witnessed increased manufacture of galenicals. But imports of pharmaceutical products were resumed immediately after the War. Consequently competition sharpened and the infant industry received a setback during the twenties. This adverse situation notwithstanding, the industry undertook, by 1930, the manufacture of biological products like sera and vaccines, anaesthetics like ether and chloroform and coal-tar distillation products like naphthalene and cresol. In 1930, again,

manufacture of Tetanus anti-toxin was taken up for the first time. The industry's progress during the thirties, in the face of foreign competition, was slow but steady. By 1939 it was able to meet 13 per cent of the country's medicinal requirements.

The outbreak of World War II in 1939 proved to be a shot in arm for the industry. In 1941, manufacture of an anti-dysenteric drug, Iodochlor/Di-iodohydroxy-quinoline, was taken up for the first time in the country. Manufacture of a number of alkaloids like ephedrine, santonin, strychnine, morphine, emetine, atropine and codeine was undertaken by the industry during this period. At the same time, production of chemotherapeutic drugs such as arsenicals, anti-leprotic drugs and colloidal preparations of calcium, silver, manganese, iodine, etc. was also established. Besides, manufacture of glandular products like liver extracts, pituitary extracts and adrenaline solutions was commenced during the war period. The country became virtually self-sufficient in the production of sera and vaccines. By and large, by 1943, the Indian producers were in a position to meet upto 70 per cent of the then medicinal requirements of the country.

The fact nevertheless remained that the industry's activities in the field of fine chemicals and synthetic drugs were mainly confined to processing and manufacture of compounded preparations. They did not extend to the production of such pharmaceuticals starting from the basic chemicals. The industry's development during the war years was thus uneven.

In the immediate post-war years (1945–47), the world-wide shortage of drugs and pharmaceuticals continued. The Indian industry had, therefore, no difficulty in maintaining its tempo of growth and even in developing export markets for galenicals, alkaloids etc., though the total value of its production, consisting mostly of formulations was only of the order of Rs. 10 crores in 1947. But this favourable situation did not last long, for the Indian pharmaceutical industry could not keep pace with the war-time developments leading to the replacement of many familiar drugs by a number of new chemotherapeutic products and antibiotics.

In the immediate post-Independence years from 1948 to 1953, several reputed international companies set up processing facilities in Bombay, Calcutta and parts of Western India. These companies, with their well equipped establishments in India, were able to keep abreast of the new discoveries in medicine and thus to issue new preparations. They had an assured supply of bulk pharmaceuticals from their principals, and they had established markets in India for their products.

Of the 75 large-scale units in the country in 1952, as many as 35 were in the then Bombay State, 25 in West Bengal and only 15 units were

located in other States. The State-wise distribution of small-scale units also presented a similar picture with Bombay accounting for 556 units of a total of 1,568 units in the entire country. West Bengal ranked second with 539 units. These two States thus accounted for 1,095 small-scale units. The following table illustrates this:—

	Number of Units in 1952			
	Large-scale		Small-scale	
Bombay	35	(47%)	556	(35%)
West Bengal	25	(33%)	539	(34%)
Other States	15	(20%)	473	(31%)
	75	(100%)	1,568	(100%)

Both the Central and State Governments were active participants in the industry in the then State of Bombay in the initial stages. Among the Government factories were, (*i*) the Medical Stores Depot at Bombay, (*ii*) the Indian Penicillin Bottling Plant at Pimpri, (*iii*) the Shark Liver Oil Factory at Sassoon Dock, Bombay and (*iv*) the Haffkine Institute at Parel, Bombay.

The following statement gives the capital invested, value of raw materials consumed, total sales and labour employed in the Central and State Government factories in Bombay State in 1952:—

Name of factory	Capital invested (Rs. in lakhs.)	Sales	Value of Raw Material consumed (Rs. in lakhs)		Labour employed		
			Indigenous	Imported	Technical	Non-technical	Total
1. Indian Penicillin Bottling Plant, Pimpri.	44.50	30.61	1.23	14.70	5	80	85
2. Government Shark Liver Oil Factory, Bombay	2.10	3.00	1.09	..	3	11	14
3. Government Medical Stores Depot, Bombay	2.40	10.00	7.00	..	13	57	70
4. Haffkine Institute, Bombay	48.25	20.00	N.A.	N.A.	70	500	570
Total ..	97.25	63.61	9.32	14.70	91	648	739

Pharmaceutical and Drug Industry in Maharashtra

	No. of Units
Large-scale ..	65
Small-scale ..	1,327
	1,392

(1974)

Production	Bulk Drugs	Finished Products (Formulations)
	(Rupees in crores)	
Organised Sector ..	16.50 (29.4%)	198.80 (66%)
Small-scale Sector ..	2.15 (41.3%)	43.00 (62.3%)
Total ..	18.65 (30.4%)	241.80 (65.4%)

Figures in brackets indicate percentage of the total pharmaceutical industry in Maharashtra to that in India.

The history of the pharmaceutical industry in Bombay can be traced back to 1868 when the Kemp and Company was established to manufacture pharmaceuticals. It was followed by the Zandu Pharmaceutical Works in 1910 which produced ayurvedic and allopathic medicines. Establishment of the H. J. Foster and Co. in 1924 was an important addition to the industry. This company was subsequently renamed as Glaxo Laboratories in July 1968 which became a public limited company. It was followed by the May and Baker in 1928 and the Chemical, Industrial and Pharmaceutical Laboratories in 1935, in Bombay.

With these pioneers, the industry developed progressively, particularly in the post-Independence period. The earlier concerns have their plants mainly in the Worli, Prabhadevi, Dadar and Parel areas of Bombay, while comparatively new factories found a home in Andheri-Kurla region, Bhandup, Jogeshwari and Mulund regions. There are about 43 large-scale manufacturing concerns in Bombay at present. The rapid development of the industry in this city during the past about 25 years gave a great impetus to the growth of a very large number of units in the medium and small scale sectors in Bombay. The development of pharmaceuticals also encouraged growth of a large number of small scale units manufacturing containers, packing material and other ancillary industries in Bombay.

The industrial skyline of Bombay has, over the past 15 years changed very considerably from the smoking chimneys of leading textile mills to the neatly designed, modern sophisticated plants of complex chemical based industries with the pharmaceutical industry topping the list. The textile industry, undoubtedly, still dominates the industrial economy of Bombay in terms of employment, but with textiles already having become a " sick " industry, chemical-based industries, including pharmaceuticals, now head the list of industries in the Bombay-Pune industrial belt.

Contrary to the trend of development of pharmaceutical industry in West Bengal, Bombay's growth in this vital sector has been on more modern and scientific lines. New units were set up not only with the latest technology available from the advanced countries but also with foreign capital participation. The post-Second World War boom in the pharmaceutical industry witnessed the opening in Bombay of the sales and marketing offices of some leading pharmaceutical companies in the world. This coupled with the excellent infrastructure facilities available at Bombay and its environs stimulated the growth of the pharmaceutical industry in and around Bombay.

The initial free flow of international technology and know-how helped the nascent pharmaceutical industry to attain a degree of development and complexity that took double that time for many other developed countries to accomplish. In this endeavour almost all the major countries having a well developed pharmaceutical industry have contributed in one way or another. Thus, we have in Bombay region today pharmaceutical companies with British, American, Swiss, German, Japanese and Dutch collaboration.

This tie-up with leading foreign manufacturers has also given an impetus to research and development in this industry. Two of the country's best drug research laboratories are located in Bombay. The two research laboratories in Bombay, *viz.* CIBA-GEIGY Research Centre and Hoechst Research Centre have contributed immensely to technological advancement in the field. Another important consequence of this international co-operation in this most innovative, technology-based enterprise is that the industry today encompasses the whole spectrum of pharmaceutical operations, research and development, production, marketing, rigid quality control, personnel development and professional management. These factors have not only generated within the country the technological capability to produce drugs of the highest standards and quality but it has also put India firmly on the world map for pharmaceutical exports.

The statistics of the Annual Survey of Industries for 1973-74 and 1975-77 reveal immense development of the drugs and pharmaceutical industry in Greater Bombay. According to this survey there were 129

factories in 1973-74 which increased to 162* in 1975-77. They provided employment to 21,013 persons including 15,045 workers in 1973-74 which increased to 24,380 persons including 14,204 workers in 1975-77. The capital investment in this industry increased from about Rs. 87.46 crores in 1973-74 to about Rs. 1,06.84 crores in 1975-77. The fixed capital of the factories was Rs. 31,39,28,100 in 1973-74 and Rs. 38,25,90,000 in 1975-77. The working capital was increased from Rs. 53,37,07,800 in 1973-74 to Rs. 61,14,72,000 in 1975-77. This is a highly capital intensive industry requiring modern equipment.

The industry worked for 68,68,686 man-days, while its wage bill amounted to Rs. 32,05,81,000 per annum during the A. S. I. period of 1975-77. The factories had paid a wage bill of Rs. 21,21,73,300 in 1973-74. Fuel consumption of the factories was worth Rs. 2,16,44,700 in 1973-74 and Rs. 4,40,34,000 per annum in 1975-77. The value of raw material utilised was Rs. 94,48,97,100 in 1973-74 which increased to Rs. 12,90,359,000 per annum in 1975-77. The total value of inputs of the Bombay pharmaceutical industry was Rs. 1,07,61,06,900 in 1973-74 which stood at Rs. 1,69,94,71,000 in 1975-77. The total output of the factories increased from Rs. 1,63,60,11,000 to Rs. 2,49,22,10,000 per annum during 1975-77. The value of drugs and medicines produced increased from Rs. 1,59,22,63,400 in 1973-74 to Rs. 2,23,07,85,000 in the period 1975-77. The value added on manufacture was Rs. 52,24,79,300 in 1973-74 which increased to an impressive figure of Rs. 75,01,08,000 per annum during 1975-77. The value of plant and machinery increased from Rs. 34,75,90,100 to Rs. 41,07,07,000 during the period of comparison. The net income of the factories was as high as Rs. 66,32,17,000 per annum during the Annual Survey of Industries of 1975-77.

The above statistics lead us to the conclusion that the industry registered a steady progress over the period of comparison. This highly capital intensive industry contributes significantly to the gross national product, besides providing employment to 24,380 persons. This is also a highly paid industry which assures good returns on capital. In fact, it is one of the most prosperous and developing industries. It has hardly suffered from stagnation or any other development problems which are peculiar to many other industries in the country. With the growing health consciousness and medical services available, the industry never suffered from demand recession also.

The large-scale pharmaceutical companies in Bombay are found to distribute very high rates of dividend on shares. The units in this city

* As per the Director General of Technical Development, Government of India, there are 43 large-scale factories in Bombay out of the total of 120 large-scale units in India.

are reported to export medicinal products worth more than Rs. 20 crores per annum. It is thus an important industry from the point of view of exports. Though the development of the pharmaceutical industry in Bombay, as that in India, is yet to match, in some respects, with that in the advanced countries in the world, it is nevertheless pre-eminent among the developing countries in this field. As the UNIDO Expert Group put it, the level of operations of this industry, which is comparable to international standards in production technology and quality of products, had been reached after many years of experience with international collaboration. Some of the multi-national companies have undertaken an intensive research and development programme so as to reach advanced international standards. Their progress in the production of the most complex synthetic drugs, antibiotics and a wide range of therapeutic and prophylactic medicines have also contributed to raising the standard of medical care in the country.

In view of the crucial life-saving products of this industry, Government have been devoting considerable attention to its needs and regulating its working. Recently the Government of India, on the basis of the Hathi Committee Report, has decided to allocate priority to the public sector; to regulate the equity participation of multi-national companies to 40 per cent in case of those not engaged in bulk drugs involving high technology and to rationalise price structure in the case of many drugs. These measures are in the best interest of the country, and are not likely to hamper the progress of the industry in Bombay.

COSMETICS, SOAPS AND DETERGENTS

This segment of industry is conceived, for purposes of this analysis, to include manufacturing perfumes, cosmetics, lotions, hair dressing materials, tooth pastes, soaps, synthetic detergents, shampoos, shaving products, cleaners, washing and scouring products and other toilet preparations. The industry thus covers a wide range of chemical-based goods of household use. This classification of the industry accords with the grouping adopted by the Annual Survey of Industries, the detailed statistics according to which are furnished in Table No. 10 in this chapter. As per the Annual Survey of 1975-77, there were 40 registered factories engaged in this industry in Bombay which provided employment to 8,112 employees including 6,242 workers. The fixed capital in the factories in Bombay was Rs. 28,54.41 lakhs, the working capital Rs. 30,53.31 lakhs, while the invested capital was Rs. 82,54.41 lakhs. The outstanding loans of the companies were very high at Rs. 56,29.95 lakhs which were a little less than the fixed and working capital taken together. The industry worked for 26,97,609 man-days per annum. The total emoluments paid to employees were Rs. 11,14.38 lakhs while the share of wages to workers

was comparatively lower, *viz.*, Rs. 6,03.16 lakhs. This shows the preponderance of technically qualified personnel over workers.

The raw material consumption of the factories was to the order of Rs. 1,34,74.14 lakhs, the other inputs being worth Rs. 22,98.15 lakhs per annum. The value of plant and machinery in the industry was Rs. 28,41.88 lakhs. The value of total inputs was computed at Rs. 1,64,10.63 lakhs as against the total output of Rs. 2,18,38.82 lakhs per year during the survey period. The value of products was to the tune of Rs. 2,06,04.86 lakhs. The value added on manufacture by the industry was computed at Rs. 51,97.68 lakhs. The net income of the factories in Bombay was enumerated at Rs. 47,49.77 lakhs.

These statistics bring home some conclusions about the industry. The outstanding loans are quite high. The ratio of output to inputs is very high which means high profitability in the industry in Bombay. The value added is also considerably high. The total output is about 260 per cent of the invested capital. It means higher returns on capital.

Though attempts were made as early as 1879 to manufacture soap on western lines at Meerut, the first soap factory in India on modern lines was established as a private enterprise by the Tatas at Cochin. This was followed by manufacture of soap by the Godrej and Boyce in Bombay, which was the first factory in Bombay and second in India. When the Tatas and the Godrej entered the field, India was importing soap. But the swadeshi movement launched by nationalist leaders gave a great fillip to the indigenous industry to strive. By about 1930, several big and medium sized factories started operation by trained personnel, and about 85 per cent of the material could be obtained in India. But soon the industry had to face foreign competition. With a view to organise the industry on an All India basis, the All India Soap Manufacturers' Association came into existence in 1934 at Calcutta. The establishment of soap factories by the Lever Brothers, now called Hindustan Lever, in 1933-34 gave new dimensions to the industry, with which imports of soap fell down. The Second World War provided an impetus to the Indian industry as there was a drastic curtailment of foreign supplies.[1] Since the Second War there was a gradual growth of small-scale soap factories. The industry in the cottage industry sector received encouragement from the cult of Khadi and Swadeshi, particularly from the Khadi and Village Industries Commission, which has a big centre at Borivli in Bombay, known as Kora Gramodyog Kendra.

Synthetic detergents now occupy an important place in soaps and cleaning media. Synthetic detergents were not manufactured in India before the Second Five-Year Plan, though their usefulness in washing

[1] *Kothari's Investor's Encyclopaedia.*

costly fabrics like rayon, silk and nylon had already made them popular. The Swastik Oil Mills of Bombay went into production of synthetic detergents for the first time in India in 1957. In the following year another unit, namely, Hindustan Lever, Bombay, took up production of synthetic detergents. The combined annual capacity of the two units was 7,315 tonnes in 1961. Additional production capacity amounting to 5,304 tonnes was licensed to new units in Maharashtra and one in West Bengal.[1]

Besides the numerous small manufacturers of soap and detergents in Bombay, the principal companies which deserve mention are as under. The Godrej Soaps, the oldest in Bombay, has a factory at Vikhroli. It has an installed capacity to produce 13,860 tonnes of soaps and 20,000 tonnes of fatty acids. The sales turnover of the unit in respect of soaps was Rs. 8.49 crores in 1978-79 and Rs. 11.51 crores in 1979-80. The total turnover was worth Rs. 81.36 crores and Rs. 1,05.93 crores in the two years, respectively. The Tata Oil Mills with a factory at Sewri and another one in the city produces a wide range of soaps and vegetable oils as under[2]:—

(Rs. in crores)

Item	Installed capacity (Tonnes)	Sales 1978-79	Turnover 1979-80
Soaps ..	51,300		
Synthetic detergents ..	11,698	1,19.57	1,01.51
Toilet preparations ..	1,690	(Including other units.)	
Vegetable oils	10,913		

The Hindustan Lever, established in 1933-34, is another giant manufacturer of popular soaps, detergents, toilet preparations glycerine and vanaspati. The Johnson and Johnson with plants at Mulund manufactures perfumes, cosmetics and other toilet preparations and baby soaps. The Muller and Phipps (India) Ltd. with a factory at Vile Parle produces talcum powder (900 tonnes), detergents (288 tonnes) and soaps, medical preparations and insecticides (2.50 lakh litres). The figures in brackets indicate installed capacity. The total sales turnover of the company was worth Rs. 5.25 crores and Rs. 6.10 crores, respectively in 1978-79 and 1979-80.[3]

In the field of perfumes, cosmetics and toilet preparations, the principal manufacturers include, the Lakme Ltd. (1952) and the Colgate Palmolive Ltd., Burroughs Wellcome and Co. (1912), Ciba-Geigy of India, Duphar

[1] *Handbook of Commercial Information*, 1963.
[2] *A State-wise Picture of Large Scale Industrial Activity*, 1981.
[3] Ibid.

Interfran, Geoffrey Manners (1943), Glaxo Laboratories, Herbertsons Ltd. (1936), Industrial Perfumes (1957), Johnson and Johnson (1957), and Kelkar and Company (Mulund). The years of establishment are given in brackets wherever available, as per the *Bombay Chamber of Commerce Directory*. The tooth-pastes manufactured by the Hindustan Lever, Colgate Palmolive, Ciba-Geigy and Vicco Laboratories in Bombay find a good market, though there are other companies out of Bombay which also share the market. Tooth-brushes are manufactured in Bombay by the Colgate Palmolive, Ciba-Geigy, the Aryan Ltd. and many others.

PLASTIC MATERIALS, SYNTHETIC RESINS AND FIBRES AND TURPENTINE

This sector of chemical industry is conceived to comprise manufacture of turpentine, synthetic resins, plastic materials and synthetic fibres like nylon, teryelene except glass. This is also the classification adopted by the Annual Survey of Industries, the statistics according to which are furnished in Table No. 10 under Chemicals and Chemical Products industry. According to the Annual Survey there were 129 factories in this industry in Bombay in 1973-74 which provided employment to 6,828 employees including 4,992 workers. The number of factories declined to 29 in 1975-77 which provided employment to 4,304 employees including 2,847 workers. The capital investment in the industry was valued at Rs. 56,02.73 lakhs in 1973-74 and Rs. 50,84.65 lakhs in 1975-77. The factories consumed raw material worth Rs. 55,24.00 lakhs and Rs. 45,22.24 lakhs, respectively in 1973-74 and 1975-77. The value of products of the factories was of the order of Rs. 1,05,29.17 lakhs in 1973-74 and Rs. 77,37.89 lakhs per annum in 1975-77. The total output of the industry in Bombay was computed at Rs. 1,07,76.83 lakhs in 1973-74 and at Rs. 82,41.11 lakhs in 1975-77. The value of total inputs was computed at Rs. 68,63.49 lakhs and Rs. 62,08.55 lakhs, respectively in the above mentioned years. The value added on manufacture in the years under reference was enumerated at Rs. 34,21.91 lakhs and Rs. 15,87.87 lakhs in 1973-74 and 1975-77, respectively.

It can safely be deduced from the above statistics that there was an all-round decline in the industry in Bombay over the period of study. The decline was in respect of all aspects including number of factories, employment, capital, consumption of raw material, production, inputs, output as well as value added on manufacture. The decline might, however be a transitory stage in the period studied. The high ratio of output to inputs and a large quantity of value added on manufacture show the profitability of the industry. It is not a labour-intensive industry, while it requires highly sophisticated machinery. The manufacture of plastic chemicals and synthetic fibres involves the use of the latest type of machinery and advanced technology.

Plastic now forms an integral part of modern life and finds a place everywhere in industry and at home. It is closely linked with the development of basic chemicals in the country, and the development of this industry is due to its versatile application. The flexibility with which plastic materials can be worked makes them simple and cheaper than metals, wood, stone or ceramics. Their properties can be altered to meet specific needs. The lightness of plastic in weight, its resistance to corrosion, easy formability, thermal and electric resistance, and complete colour range makes it useful in a wide range of consumers goods as well as electric goods and industrial uses.

The development of the plastic industry in India as in other countries, assumed special significance with the development of some basic chemical industries. The growth of the chemical industries in the country during the Second Five-Year Plan encouraged the growth of the plastic industry.[1]

The plastic industry hardly existed in India before the Second World War. Government encouragement, war-time demand, and needs of growing industrialisation provided a stimulus to this industry. Its growth was both supplementary to other industries and substituting to the products of glass and metal industries.

The fabrication of end products from imported plastic materials marked the beginning of the plastic industry, while the manufacture of plastic chemicals commenced much later. The beginning of the Indian plastics industry could be traced to the moulding of celluloid articles from imported celluloid sheets and rods during the thirties of this century. The articles produced by the pioneering units were combs, soap boxes, ash trays and similar domestic articles. The manufacture of combs was started at Jessore, now in Bangla Desh, in 1926.[2] Over the years the plastic industry has grown into a major industry producing hundreds of items apart from articles like leather cloth, PVC sheeting, phenolic laminates, polyethelene films and tubes.

Tariff protection to the industry started with the protective levy on phenol formaldehyde moulding powder and electrical accessories in 1950.[3] The protection was extended from time to time upto December 1959. The protection was particularly liberal to the section engaged in the manufacture of phenol formaldehyde moulding powder and plastic buttons.

The indigenous industry was centred mainly in Bombay and Calcutta, though it has decentralised to many other centres in the country. The Indian Plastics Ltd. founded in 1944 is a pioneering manufacturer in

[1] *Kothari's Investor's Encyclopaedia.*
[2] *Handbook of Commercial Information*, 1963.
[3] Ibid.

Bombay. It has a factory at Kandivli which manufactures plastic articles in a very big range, electrical accessories, PF moulding powders, UP and MF moulding powders and synthetic resins. Its production capacity and actual production in a latest year are given below[1]:—

Item	Installed capacity	Production (Tonnes)	Sales Turnover	
			1978-79	1979-80
			(Rs. in crores)	
PF moulding powder	2,400	1,603	5.51	5.38
UP and MF moulding powder ..	1,050	481		
Synthetic resins	1,000	266		

This company is setting up a joint venture chemcial project in Indonesia the approval to which is granted by the Government of India. The Plastic Extruders, Bombay, were manufacturing lay-flat tubings. The manufacture of PVC sheets was started in 1954 by the Plastic and Industrial Corporation, Bombay. This firm also took up the production of long-playing phonograph records.[2] The Polychem Ltd., Bombay, founded in 1957 has one factory at Goregaon and another at Chembur. It manufactures a number of chemicals, cellulosic plastics, polystyrene styrene monomers, and other thermosetting, thermoplastic materials. It has collaboration agreement with an international company.

The Caprihans India Ltd., a foreign company, has a plant in Sewri, besides other plants at Thane, Nashik and Roha. It manufactures PVC sheets, acrylic sheets, laminates and clay coated paper. The sales turnover of all the units of the company amounted to Rs. 20.78 crores in 1978-79 and Rs. 25.27 crores in 1979-80. It is expanding its production capacity of rigid and flexible PVC films and sheets to 7,680 tonnes per annum.[3] The Exomet Plastics with works in Bombay and Taloje (Raigad district) is another manufacturer of high density polyethelene pipes, etc.

Synthetic fibres have revolutionised the entire textile industry. They have several economic advantages over cotton and other natural fibres. Synthetics are more durable, bright and can be manufactured in a wide range of colours and sheds. They are wrinkle-proof and do not require frequent ironing as in the case of natural fibres. It is therefore natural that synthetic fibres should replace natural fibres in the wearing apparel as in other uses.

The growth of the synthetic fibre industry is of very recent origin. The manufacture of nylon and teryelene fabrics started on a commercial scale in the mid-fifties. Nylon garments preceded teryelene and acrylic

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.
[2] *Kothari's Investor's Encyclopaedia.*
[3] *A State-wisa Picture of Large Scale Industrial Activity*, 1981.

fabrics in the markets. In the initial stages the fibres were imported in bulk. The Nirlon Synthetic Fibres and Chemicals Ltd., established in Bombay, in 1958 has a factory at Goregaon (East). It manufactures nylon textile yarn, polyester yarn and nylon tyre cord.

The Garware Plastics Ltd., Bombay, established in 1947, is a large-scale manufacturer of all kinds of plastic items like rigid PVC pipes, conduits and sheets, flexible PVC tubes, sheets and films, polyester films, industrial moulding, electrical conduits ete. It also produces high impact polystyrene sheets for refrigerators and vacuum forming industries as also injection moulding of highly sophisticated items like cabinets of transistor radios, television sets, tape recorders, cassettes, battery containers, and helmets used in defence services and mines. It also manufactures nylon tyres for conveyor systems and other kinds of custom moulded applications involving high degree of accuracy and precision. It's associate company, the Garware Nylons at Pune manufactures nylon filament yarn and polyester filament yarn. The Garware Synthetics produces nylon bristles, fishing twine and a number of synthetic items. *

The Bhor Industries established in 1943 has two factories in Bombay, *viz.* at Prabhadevi and Borivli which manufacture PVC films and sheets, PVC foam leather cloth, PVC adhesive tapes, PVC asbestos flooring tiles, coated wall paper and a variety of sheets and films. The Blow Plast established in 1965 has a factory at Bhandup besides the one at Nashik. It manufactures PVC footwear also.

The machinery installed by the industry is imported in some measure. A few engineering concerns in Bombay and Calcutta are now manufacturing some machinery. Though some concerns have setup tool rooms and production of moulds for compression and dies for extrusion, the complicated moulds are imported.

It was mainly in the sixties of this century that the industry made rapid progress on account of the establishment of the petrochemical complexes in and around Bombay. The plastic industry has been facilitated by the development of the petrochemical units which made available petroethylene to produce PVC and polyethylene. Its growth was accelerated also by the rise of plastic machinery manufacture and the availability of technical know-how.

PAINTS, ENAMELS, VARNISHES AND PIGMENTS

This is an important industry which is mainly localised in Bombay and Calcutta. Being the cheaper protective agent for durable articles of industrial use, the functions of the paint industry are similar to those of packing and storage in the marketing of goods. The important consumers

* *Bombay Chamber of Commerce Directory*, 1976..

of this industry are the railways, transport companies, automobiles, ships, aeroplanes, building operations, and electrical equipment and appliances.

The first production of Indian paints commenced on a small scale in 1890 near Calcutta.[1] The first large-scale unit was incorporated in 1902 also near Calcutta. Till the end of the First World War, the latter was the only unit engaged in the manufacture of paints on a large scale in the country. In the initial stages, the indigenous industry which was managed by British firms supplied marine finishes and general structural paints, while the needs of the paints of high quality were met by imports. With the increasing demand for paints during the First World War, Indian industrialists turned their attention to this field, and thus some of the prominent paint manufacturing concerns in India came into existence. During the inter-war years many small units also commenced production of paints. During the Second World War, a large demand for paints and varnishes coupled with scarcity of imported materials provided a stimulus to the indigenous industry. The rapid growth of the paints consuming industries after Independence offered a further stimulus to the development of the paint industry.

Prior to the First Plan period there were 50 major organised units and about 200 small units engaged in manufacturing of paints, varnishes and enamels in the country. Of the major units, 16 were in Maharashtra and 18 in West Bengal. Of the total production capacity in the industry which was estimated at 65,000 tonnes in the country in 1951, 46,000 tonnes was accounted for by the firms in Maharashtra and West Bengal. Most of the units in Maharashtra were from Bombay.

The production of paints, varnishes, enamels and lacquers failed to hit the target during the Second Plan. Nevertheless, production increased substantially during that period. There was considerable improvement in quality surface quoting materials, such as aluminium paints, natural and synthetic enamels, heald varnishes and insulating varnishes after about 1960-61. New items like super synthetic enamels for coating of copper wire, finishes for bakelite, luminous paints, lacquer finishes, cold cure epikote finishes, hot dip protective coatings, level indicating paints, paints capable of withstanding temperature of the order of 1500 F. Food can lacquers, special adhesives for layer batteries, gasolene finding paste, synthetic iron oxide pigments and pigment dyestuffs were also being manufactured after 1960-61.

The development of synthetic paints also known as latex paints was started mainly after 1960-61. These paints are generally based on polymers such as styrene butadiene, vinyl acetate, and polyacrylates. The paint

[1] Dr. H. Trivedi, "Indian Paint and Varnish Industry".

industry was brought within the purview of the Industries (Development and Regulation) Act of 1951 from 1957.

There were 34 factories engaged in the manufacturing of paints, enamels, varnishes and pigments in Bombay in 1970, of which two were established during the decade 1910-20; three during 1931-40; nine during 1941-50; fifteen during 1951-60 and five during 1961-70.[1] The various phases of the growth of the industry can be judged from these figures.

The Asian Paints with two factories, one in Bombay and another at Taloje near Bombay is one of the famous paint manufacturers in Bombay. The value of its sales was computed at Rs. 34.60 crores in 1978-79. The Goodlass Nerolac Paints, a foreign concern has a factory at Lower Parel besides a unit at Thane. The sales turnover of this company was to the extent of Rs. 19.59 crores in 1978-79 and Rs. 26.57 crores in 1979-80. The third reputed company at Chembur, viz., the Bombay Paints and Allied Products has an installed capacity to produce about 12,000 tonnes of paints, enamels, varnishes, etc. Its sales turnover amounted to Rs. 6.30 crores in 1979-80.[2]

RUBBER, PLASTIC, PETROLEUM AND COAL PRODUCTS INDUSTRY

The manufacture of rubber, plastic, petroleum and coal products is one of most important industries of Bombay. This sector of industries is comparatively very young in age, the first rubber factory being started only in 1921 in Bengal. Production of natural rubber in the country and a vast potential market have contributed to the growth of rubber industry. It attracted some foreign as well as Indian pioneers to enter this industry. The Second World War provided the impetus to its growth which received further encouragement with development planning after 1950-51. The industry made tremendous progress since the mid-fifties.

The industry manufactures a wide range of products from heavy duty automotive tyres to tiny articles like balloons, including innumerable types of specialised industrial and mechanical products required by various industries like the automobile, aircraft, railways, shipping, textiles, pharmaceuticals, sports goods, engineering as also agricultural goods. It also caters to the needs of defence forces of the country.

The rubber, plastic, petroleum and coal products industry of Bombay is a highly modernised and sophisticated industrial sector. The industry is characterised by a high degree of rationalisation and advanced technology which are a *sine qua non* for its development. It is managed by

[1] *Prospects of Co-operative Movement in the Paint Industry*, Indian Paints and Allied Industries Association.

[2] *A State-wise Picture of Large Scale Industrial Activity*, 1981.

technocrats of high merit and experience. A number of chemical technologists and technocrats are available in Bombay.

The rubber and rubber products industry of Bombay comprised 50 registered factories which provided employment to 4,518 workers in 1956. It was still a very young industry in the city which expanded in subsequent years. The petroleum and coal industry was also in its infancy in 1956 when it comprised 14 factories providing employment to 5,358 persons. Of the 50 rubber and rubber products factories, 36 were in the suburbs, the rest being in the city. Of the 14 factories engaged in petroleum and coal products, 8 were in F Ward while only two were in the suburbs. The subsequent development of both these industries was in the suburbs of Bombay.

According to the All India Rubber Industries Association there were over 200 rubber goods manufacturing units in Greater Bombay, of which 45 were its members in 1977. However, these 45 units accounted for 80 per cent of the total consumption of raw rubber. Most of the factories which are not members of this association are in the small-scale or cottage industry sector. The rubber industry, according to the association, provided employment to about 12,000 workers in Bombay in 1977.

The industry is a capital intensive one with exception of a few sectors which are labour intensive. The industry's total turnover is estimated to exceed Rs. 750 crores, and employment over a lakh of persons (in India).[1] The industry's average annual growth rate during the Post-Independence period has been of the order of 8.8 per cent. This growth can be attributed to factors such as, (*i*) vast internal market, (*ii*) rapid industrialisation in the country, (*iii*) improvement in standard of living of the people, and (*iv*) availability of raw materials. Maharashtra accounts for about 23 per cent of the country's total consumption of raw rubber.

The industry caters to most of the needs of the Indian market. Besides, it has also emerged as an exchange earner[2]. In the matter of quality, Indian rubber products are comparable to those of industrially developed countries.

In the paras that follow the important rubber products industries are dealt with individually.

The Annual Survey of Industries has grouped the tyre and tube industry and petroleum refineries under the category of manufacture of rubber, plastic, petroleum and coal products. In the nature of things, Bombay ranks first in Maharashtra as regards the development of this industry, while Bombay's share in the production of the goods is very high as compared to the production in India also. As per the Annual Survey of

[1] All India Rubber Industries Association (Information received).

[2] The total exports from Maharashtra were worth about Rs. 3.84 crores in 1975-76.

Industries (1975-77), there were 538 factories in this segment in Bombay which accounted for 73.30 per cent of the total number of factories engaged in the manufacture of rubber, plastic, petroleum and coal products in Maharashtra State. The invested capital of the factories in Bombay was as high as Rs. 1,37,55 lakhs which formed 75.58 per cent of the invested capital of all factories in this category in Maharashtra. The factory employment in this sector in Bombay was to the order of 24,691 or 71.88 per cent of the total employment in this sector in the State. The value of output of this industry in Bombay was Rs. 4,67,51 lakhs which accounted for 84.32 per cent of the total output in Maharashtra. This clearly indicates the spectacular share of Bombay in the output of these products in Maharashtra. The value added on manufacture by the sector of industry in Bombay which was worth Rs. 45 34 lakhs or 73.24 per cent of the total for Maharashtra also shows the eminence of the city in this field as in others.

The structure of the rubber, plastic, petroleum and coal products industry in Bombay can be studied from the statistics of Annual Survey of Industries in 1973-74 and 1975-77 as furnished in Table No. 11.

TABLE No. 11

MANUFACTURE OF RUBER, PLASTIC, PETROLEUM AND COAL PRODUCTS, GREATER BOMBAY

(Figures of Rs. in lakhs)

Item		Rubber, Plastic, Petroleum and Coal products		Tyre and Tube industry		Petroleum Refineries	
		1973-74	1975-77	1973-74	1975-77	1973-74	1975-77
1	2	3	4	5	6	7	8
1.	No. of estimated factories.	464	538	28	21	6	7
2.	Fixed capital (Rs.) ..	65,88.63	62,67.53	8,67.11	11,11.27	40,51.96	35,35.34
3.	Working capital (Rs.) ..	50,60.17	52,64.58	10,15.19	10,42.61	21,97.56	26,88.63
4.	Capital investment (Rs.)	1,20,11.50	1,37,55.14	21,89.05	28,03.02	55,21.82	74,25.79
5.	Outstanding Loans (Rs.)	47,52.07	51,68.17	7,24.81	15,83.40	16,88.75	8,67.78
6.	Mandays worked ..	N.A.	71,68,265	N.A.	15,84,585	N.A.	6,21,822
7.	All workers ..	20,964	18,281	4,218	3,905	1,499	1,209
8.	All employees ..	27,046	24,691	5,650	5,378	2,222	1,786
9	Wages to workers (Rs.)	9,88.26	11,28.54	3,49.12	3,96.63	1,86.95	2,18.12
10.	Total emoluments (Rs.)	17,44.29	22,11.11	5,99.29	7,94.57	4,14.39	4,84.69
11.	Fuel consumed (Rs.) ..	7,32.27	13,15.67	1,40.92	3 20.39	4,41.37	6,87.59
12.	Material consumed (Rs.)	1,56,43.59	3,63,18.81	29,40.82	68,03.78	68,82.09	2,36,51.47
13.	Other inputs (Rs.) ..	N.A.	37,77.07	N.A.	5,15.30	N.A.	13,27.59
14.	Total inputs (Rs.) ..	1,90,74.03	4,14,11.55	42,19.50	76,39.47	80,31.24	2,56,66.65
15.	Plant and Machinery (Rs.)	N.A.	97,43.95	13,71.22	17,38.87	51,54.38	56,19.22

TABLE No. 11—*contd.*

(Figures of Rs. in lakhs)

Item	Rubber, Plastic Petroleum and Coal products		Tyer and Tube industry		Petroleum Refineries	
	19 3-74	1975-77	1973-74	1975-77	1973-74	1975-77
1	2	3	4	5	6	7
16. Value of products (Rs.)	2,02,29.62	4,26,25, 27	36,48.30	90,30.19	82,78.19	2,50,71.55
17. Value of other output (Rs.)	N.A.	41,26.13	N.A.	3,17.32	N.A.	21,36.93
18. Total output (Rs.) ..	2,40,64.78	4,67,51.40	56,14.28	93,47.51	99,25.26	2,72,08.48
19. Depreciation (Rs.) ..	6,44.48	8,05.70	1,24.95	1,57.55	3,18.39	3,46.31
20. Value added on manufacture (Rs.)	43,46.26	45,34.16	12,69.81	15,50.48	15,75.62	11,95.52
21. Factory payment (Rs.)	N.A.	7,99.07	N.A.	2,49.08	N.A.	1,51.68
22. Net income (Rs.) ..	N.A.	37,35.09	N.A.	13,01.40	N.A.	10,43.84

TYRES AND TUBES

The tyre and tube industry is an important sector of the rubber industry. This sector of industry in India is about 45 years old. In 1936, the Firestone Rubber Tyre Co. and the Dunlop Tyre Co. started manufacture of tyres and tubes. This was however a modest beginning as the number of automobile vehicles was extremely limited and a bulk of the demand was met from imported goods. With the expansion of the automobile industry and acceleration of demand for passenger cars and commercial vehicles after 1955, the demand for tyres and tubes increased immensely. Consequently, the industry received encouragement in the early sixties of this century. There are at present (1980-81) 16 factories engaged in the manufacture of automobile tyres and tubes with an installed capacity of about 79.29 lakh tyres and tubes per annum. Production of automobile tyres showed an increase of nearly 8.5 per cent (compound rate) in the last two decades, while the corresponding figure for tubes is also an impressive one, *viz.* 7 per cent.

The unprecedented spurt in prices of petroleum products which affected automobile production, have had an adverse impact on the demand for tyres and tubes. This was however not a very significant factor, because despite the rise in prices, the demand for automobile vehicles has ever been on the increase. The government and public sector undertakings are acquiring vehicles on a very increasing scale. Besides, manufacture of tyres and tubes is a defence oriented industry, as the demand for heavy armoured vehicles, medium vehicles and light vehicles for the army, navy and air force of India has been multiplying. In fact, Government is a major single buyer of tyres and tubes.

The development of this industry indigenously has reduced the necessity of import of the goods during the last about a decade or more. It is thus an important industry from the point of view of import substitution. At present tyres and tubes of only aircrafts (both civil and air force) and tractors are imported. On the other hand, the growth of exports of tyres and tubes to foreign countries has been phenomenal after 1970. The major items of exports are truck and bus tyres and tubes which constituted nearly half the total value of exports of tyres and tubes.

Two of the large manufacturers of automotive tyres and tubes have their plants in Bombay. The account of these giant companies is given below :—

The Ceat Tyres of India incorporated in 1958 is one of the most eminent tyre and tube manufacturers in India. This concern with collaboration with Ceat International S. A., Switzerland, manufactures different kinds of rubber tyres, tubes, flaps and tread rubber in its factory at Bhandup (Bombay) and in its branch factory at Nasik. The authorised capital of this concern is Rs. 12 crores of which Rs. 4.45 crores is subscribed. The analysis of its working is given briefly below :—

(Rs. in lakhs)

	1979	1978
Total Current Assets	3370·04	2980·49
Total Assets	4332·92	3862·25
Total Current Liabilities ..	1896·89	1473·07
Total Liabilities and Net Worth ..	4332·92	3862·25
Sales	10333·88	8658·01

The company has obtained a licence for production of additional 1.6 lakh automotive tyres and tubes, each per annum at its Bhandup plant. The total licensed capacity of the company is to manufacture 10.1 lakh automotive tyres.

The raw materials used by the company include natural and synthetic rubber, carbon black, rayon and nylon tyre cord.[1]

The Bombay Tyres International, formerly known as Firestone Tyre and Rubber Company of India, is another principal manufacturer of tyres from small scooter tyres to giant earth-mover tyres in Bombay. It also manufactures tubes, flaps, compound stocks, retread and repair materials. The company was incorporated as a private limited concern

[1] The major consumption of rubber is by the automotive tyre and tube industry which is around 50 per cent of the rubber consumption in the country. Thus, there is a link between price of rubber and that of tyres.

in 1930 under the name Firestone Tyre and Rubber Company, and was renamed as at present afterwards. It was converted into a public limited company in 1979. Its authorised capital is Rs. 6 crores, while subscribed paid up capital is Rs. 3.33 crores. It comes under the F. E. R. A. Act. The Bombay Tyres International has a licensed capacity to manufacture 6.72 lakh automotive tyres per annum. It has a factory at Sewri, the sales of which amounted to about Rs. 57.73 crores in 1979-80.

As per the Annual Survey of Industries there were 28 tyres and tubes factories in Bombay in 1973-74 which declined to 21 in 1975-77. The decline in number of factories was followed by a decline only in employment. There was however an all-round rise in capital, inputs, output, value added on manufacture and practically all other aspects. The detailed statistics are given in Table No. 11.

Over a decade ago, the industry had to depend entirely on import of most of its major raw materials including synthetic rubber, carbon black, rubber chemicals, etc. This position has changed considerably and most of the raw materials required by the industry are now being manufactured within the country and a major portion of the industry's needs is met with from indigenous sources. Natural rubber is obtained from Kerala, Tamilnadu and Karnatak. Natural rubber has however its own limitations and it may not be able to meet the growing demand of the fast expanding rubber industry. This coupled with advancing technology, need for sophisticated rubber products and rapid industrialisation have necessitated production of synthetic rubbers with certain properties. Thus synthetic rubber has an edge over natural rubber. Synthetic rubber is obtained from Bareilly (U.P.) and other sources in the country as it is not manufactured in Bombay. The prices of indigenously manufactured synthetic rubber are higher than those in international markets. This is mainly due to shortage of raw material, coal, power supply etc. The Government of India is alive to this aspect of the industry and is taking measures for redressal. Some quantity of synthetic rubber is imported. The third variety of rubber, namely, reclaim rubber is indigenously available. Some quantity of reclaim rubber is also exported.

Carbon Black is an essential raw material of the rubber industry which was entirely imported upto 1963. At present there are two companies manufacturing carbon black in the country, one of which is in Bombay. The Union Carbon India Limited at Bombay was commissioned into production in October 1966 with a licensed capacity of 30 million lbs. The present capacity of this unit is 35,700 tonnes per annum. With the incorporation of this unit, this essential raw material is readily available in Bombay. The quality of the carbon black manufactured by the Bombay factory is satisfactory, and it is also exported in some quantity to foreign markets.

Tyre Cord is the most important raw material of the automotive tyre industry. There are three types of tyre cords, *viz.* cotton tyre cord, rayon cord, and nylon tyre cord. The use of cotton tyre cord in the automotive tyre industry is very negligible, while rayon cord and nylon cord are used in bulk quantity. Rayon cord is manufactured by the National Rayon and the Century Rayon on the outskirts of Bombay, while nylon cord is manufactured by the Nirlon Synthetic Fibres and Chemicals Ltd. at Goregaon in Bombay. The manufacture of nylon cord and rayon cord has revolutionised the automotive tyre industry not only in Bombay but also in India.

Rubber Chemicals : Rubber chemicals are a *sine qua non* for the growth of rubber industry. The Bayer (India) Ltd. and the Mindia Chemicals Ltd. with their plants in Bombay are two of the three large-scale manufacturers of rubber chemicals in India. They produce such chemicals in bulk quantity, and have contributed to the growth of the rubber industry. There are a few other units in the small-scale sector manufacturing rubber chemicals. The quality of the rubber chemicals produced by the above referred companies as also the Alkali and Chemical Corporation of India, Calcutta, is of international standards.

Besides the main raw materials mentioned above, there are several other raw materials going into the manufacture of rubber products, the important among them being textiles, sulphur, titanium dioxide, zinc oxide, stearic acid, colours, etc. Most of these materials, with the exception of sulphur which is imported, are available in the vicinity of Bombay though a few of them are obtained from other parts of the country. As for titanium dioxide, there is only one unit manufacturing this product in the country at present.[1]

CYCLE TYRES AND TUBES

Another important sector of the industry next to automotive tyres is cycle tyre and tube sector accounting for about 13 per cent of the industry's total rubber consumption. Formerly cycle tyres and tubes were manufactured by the large automotive tyre manufacturing companies. Since the reservation of cycle tyre manufacture for small-scale sector by Government a few years back, many small-scale units have entered the field. Some of the automotive tyre manufacturing units which were licensed earlier for manufacture of cycle tyres, but had lower installed capacity, have also started producing them with increasing demand from the upcountry.

The figures for production of cycle tyres and tubes in Bombay are not separately available. The estimated production of tyres was five crores

[1] N. K. Patel, *Indian Rubber Industry* (booklet).

(No.) and of tubes also five crores in India in 1978-79.[1] This industry is steadily progressing and holds out good potential due to ever-increasing use of bicycles by the country's vast population.

RUBBER FOOTWEAR

The rubber footwear industry ranks third in the rubber industry, accounting for about 9.8 per cent of the total rubber consumption. The industry manufactures a large variety of footwear including all rubber, canvas/leather uppers and rubber soles, sports shoes, gum-boots, combat-boots for defence forces, ladies and children footwear in different shapes and fashions.

The Carona Sahu Company established in Bombay in 1953 is one of the most important manufacturers of rubber footwear not only in Bombay but also in India. The account of this company is given under leather industry in this Chapter. Besides, there are a number of small-scale factories and cottage units engaged in this industry. In fact small-scale and cottage sector in this industry accounts for a major part of the production of footwear.

As per the Task Force Report, about ten crores pairs of rubber footwear were manufactured in India in 1978-79. Production figures for Bombay are not readily available.

It is noteworthy that while the total demand for footwear has always been on the increase, the in-roads made by the PVC footwear have adversely affected the rubber footwear industry during the past years.

As per the Annual Survey of Industries of 1973-74, there were 25 registered factories manufacturing rubber and plastic footwear which provided employment to 2,200 employees including 1,865 workers in Bombay. The capital invested in the industry was Rs. 3,55.90 lakhs. The total output and total inputs were computed at Rs. 6,43.79 lakhs and Rs. 5,43.78 lakhs, respectively. The value added was computed at Rs. 77.12 lakhs in 1973-74. The ratio of output to inputs shows the high productivity and profitability of the industry in Bombay.

GENERAL RUBBER GOODS

Production of various rubber goods like industrial and mechanical products such as beltings-transmission, conveyor, V-belts, etc. hose pipes-radiator, vacuum brake, and components and parts required by railways, defence forces as well as by various industries like textiles, surgical and pharmaceuticals, automobiles, aircraft and a number of other engineering industries, as also of rubberised fabrics and latex goods, is fast increasing in view of the rapid industrialisation in the country. The demand

[1] N. K. Patel, *Indian Rubber Industry*.

for agricultural rubber products like hose-pipes, rubber products for sprayers and dusters, tube well pumps and parts for tractors, is also growing owing to expanding agricultural operations.

PETROLEUM INDUSTRY

The Petroleum industry is by far the most vital sector of the national economy. The pace of industrialisation and economic growth of the country is conditioned by the availability of petroleum products which are so very scarce. The oil explorations in the rich Bombay High Oil fields have redeemed the national economy and raised very high hopes on availability of the vital source of energy to the country. The Bombay High is a saga of the Indian effort towards economic prosperity and self-sufficiency. It is also a challenge to the Government and experts, according to whom no other project taken up during the last 30 years in the country has thrown up so many challenges as Bombay High. It is however a fatefull landmark in the economic history of India, a little short of a tryst with destiny, and an occasion for national jubilation.

The history of oil exploration in India is traceable to the 19th century when the Assam Oil Company and Burmah Oil Company and their associates started oil exploration in the upper Assam region. From 1949 to 1960, the Standard Vacuum Oil Company explored the West Bengal basin first whose efforts were shared subsequently by the Government of India under the Indo-Stanvac Petroleum Project. The project however, did not succeed, although it produced valuable data which was extremely useful for further projects. Till May 1976, crude in commercial quantities was produced only in Assam and Gujarat. The Bombay High Oil-fields, 686 square kilometres in area, were commissioned in 1976. Currently, the average rate of production from these oil-fields is 1,20,000 barrels or 16,000 tonnes of oil per day. The annual production of oil will go upto 12 million tonnes after 1983. This will constitute about 40 per cent of the total production in India.

The account of the Bombay High and the oil production by the Oil and Natural Gas Commission (ONGC)* therein is given below.

Bombay High[1] : The oil field known as Bombay High covers approximately an area of 686 square kilometres in the Arabian sea, about

* The Oil and Natural Gas Commission is the only public sector undertaking engaged in exploration of crude oil and natural gas resources in various sedimentary bases of the country both offshore and inland. It was set up by the Government of India in 1956 in order to develop the oil exploration industry in India. The ONGC began drilling for oil in the Bombay High structure in 1973. By the end of January 1979, of the 32 structures drilled, 30 structures were tested and 12 were oil and gas bearing.

[1] Based on *Petrochemicals from Bombay High*, Maharashtra Economic Development Council.

200 kilometres north-west of Bombay. Crude Oil and associated gas were discovered in these off-shore fields in 1974 and production from them started in 1976. The fields provide both oil and gas. However, the gas is co-produced with oil and hence it is not a free gas but associated gas. Production or exploration for more production from Bombay High is, however, a difficult task. The offshore oil-exploration technology is extremely complex and, even production and transport problems are formidable. Most of the off-shore oil exploration in the world has been so far carried out in twenty to thirty metres of water. Only recently, attempts were made to dig an exploratory well in 1,500 metres of water. For drilling operations in respect of wells, the drilling rig has to be mounted on a ship. This ship itself is required to be kept dynamically positioned by various control systems, so that it remains exactly over a fixed spot on the ocean floor. Once oil is found, the development of the field involves construction of costly platforms. In the typical conditions of Bombay High, it is possible to have only four wells originating from each platform. From these constructed platforms, the crude has to be transported to a process platform. Here oil and gas are separated, the crude is conditioned and the gas is dried. Both are then sent on shore. A massive processing and pumping platform had to be constructed at Bombay High North for this purpose. This platform, known as BHN is to be equipped with pumping facilities for handling the large quantity of oil and gas before it is transported through the submarine pipeline to the shore terminal at Uran near Bombay. Global tenders had to be invited for construction of this platform, in view of the magnitude of the task involved. The weight of the involved structures itself is 6,250 tonnes and the height of the platform above water upto its helicopter deck is 41 metres. The pile penetration for the platform involved reaching a depth of 91 metres below sea-bed. Another platform called platform F, with comprehensive treatment facilities for oil and gas required construction. The F platform and BHN platform will get connected by a cross-bridge.

The Bombay High indigenous crude has a high wax content in the diesel oil atmospheric residue range. The diesel oil yield gets limited by a property known as " pour point " and the atmospheric residue solidifies at ambient temperatures. The Bombay High crude has a high " pour point " of 29 degrees centigrade while the sea-bed temperature is 24 degrees centigrade and this difference causes the crude to congeal. Special heating arrangements are, therefore, necessary for its handling, storage and transport. A " pour point " depresser is, therefore, required on platform F to reduce the viscosity of crude and prevent it from congealing. The F platform also dehydrates the gas to remove the water mingled with gas. This is necessary to prevent internal damage to the gas pipeline. The

proper embedding of submarine pipelines is also a complicated task. A multipurpose support vessel equipped with fire-fighting and anti-pollution equipment is necessary for maintenance in respect of the platform installations and the submarine pipelines.

The terminal facilities at Uran will provide for the removal of salt content from off-shore oil. The crude also needs to be 'stabilised'. The other plant required to be set up is a 'fractionation plant', which will separate the gas into different constituents. This gives a brief idea of what is Bombay High.

The Government of India has, therefore, thought it fit recently to invite interested foreign parties to participate in the exploration work and the development of hydrocarbons in the selected blocks of Bombay High. It has also approved the phase IV development programme of Bombay High. The outlay involved is Rs. 365.4 crores.

Oil : The 686 sq.km. Bombay High Oil field commissioned in 1976 has eleven platforms. Currently, the average rate of production from the oil field is 1,20,000 barrels or 16,000 tonnes of oil per day. The current production of 6 million tonnes per annum was stepped upto 7 million tonnes per annum by January 1981. The annual production will go upto 12 million tonnes from 1983. This will constitute about 40 per cent of the total production in the country.

Naphtha : The crude after processing yields Naphtha. The Naphtha from Bombay High has a high aromatic content in the range of 22-24 per cent by volume and has about 25 per cent Naphthalene. It is an excellent feedstock for catalytic reforming. The reformate can be used as a high octane component for motor spirit blending or for the production of aromatics. The high aromatic content is considered a serious disadvantage when this is used in fertiliser production or in Naphtha crackers. The cracking of Naphtha yields Olefins. An aromatics complex based on the Aromatic Naphtha proposed by the Bharat Petroleum Corporation Ltd. is sanctioned by the Government of India.

Associated Gas : The associated gas from Bombay High is currently available at the rate of about 2.5 million cubic metres a day. When the oil production will be stabilised at 12 million tonnes per annum after 1983, the availability of associated gas will go up to about 4 million cubic metres per day. The associated gas contains methane, ethane, propane, butane and pentane.

All components of this gas can be used for fertiliser production and power generation. Ethane and propane fractions are used by the petro-chemicals industry. Liquefied Petroleum Gas (LPG) or the commonly known cooking gas is made up of propane and butane.

Bassein Fields : Various proposals for utilisation of the Bombay High associated gas take into account the availability of gas from Bassein fields also. Oil and gas were recently discovered in North Bassein and South Bassein fields and these fields were commissioned recently. North Bassein field is estimated to produce 2 million tonnes of oil per annum and about one million cubic metres of associated gas per day. South Bassein field is estimated to produce about 21 million cubic metres of free gas per day.

Utilisation of Bombay High Gas : At present some quantity of the associated gas is used by the Rashtriya Chemicals and Fertilizers Corporation and Tata Thermal Power Station at Trombay and the rest is flared up in Bombay High. The quantity used being suboptimal, the associated gas is being literally wasted. Effective plans for its utilisation ought to have been finalised as soon as the Bombay High Oil field production had started and, the necessary plants should have become operational by now. The Oil and Natural Gas Commission installed a plant at Uran to extract LPG from Bombay High Gas. It started commercial production in 1981-82, and a total of 73,055 MT was produced against a target of 75,334 MT.

The Ministry of Petroleum, Chemicals and Fertilisers set up a Working Group for studying the utilisation of this associated gas. It is reported to have observed that 5.5 million cubic metres per day of lean gas would be necessary by 1984-85 to feed the present fertiliser plants at Trombay I, II and V as also the two giant fertiliser plants of 1,350 tpd. ammonia capacity at Thal Vaishet in addition to town gas supply and supply to the textile mills. This requirement obviously cannot be met only from Bombay High, and additional supply of free gas to the tune of 3 million cubic metres a day was considered necessary. About 7 million cubic metres of the combination of free and associated gas would produce 5.5 million cubic metres of lean gas mentioned by the Working Group.

In the meanwhile, a group of private sector petrochemicals manufacturers in Maharashtra put forward an interim proposal for prevention of the waste of this gas. This proposal was supported by the Government of Maharashtra. The proposal involves cracking of ethane/propane at the mother cracker of the Union Carbide India Ltd. at Trombay, and requires modifications to its existing facilities. This proposal is, however, dependent on the availability of the C_2, C_3 fractions from the ONGC fractionation plant. The manufacturers also put up proposals for expansion and modernisation of their chemical manufacturing facilities based on the feedstock available from Bombay High.

The Government of Maharashtra set up the Sethna Committee in 1978 to advise it on all aspects of a gas based petrochemicals complex

including its location and also to advise on the setting up of the Aromatics complex by Bharat Petroleum Corporation Ltd. based on Aromatic Naphtha. It also made out a case for setting up giant fertiliser plants based on the associated gas in Maharashtra.

The Sethna Committee recommendations included, setting up of the proposed Aromatics complex by the Bharat Petroleum Corporation Ltd. at its existing refinery premises at Mahul near Chembur; setting up of a petrochemicals complex in the joint sector at Usar in Raigad district of Maharashtra; setting up a State level Petrochemicals Corporation; and conditional support to the proposals of existing petrochemicals manufacturers in Trans-Thane Creek and Trombay areas for expansion and modernisation of some of their chemical manufacturing facilities. On the basis of these recommendations the State Government strongly urged the Government of India for the setting up of a petrochemicals complex at Usar.

The Maharashtra State Electricity Board also examined the possibility of utilising the associated gas for power generation and proposed the setting up of big gas turbine units. The total gas requirement for these units is estimated at 1.84 million cubic metres per day. The Government of India has already exempted customs duty for import of these sets and also made available rupee facility to finance the foreign exchange components of these sets. There is, however, no firm commitment from the Government of India regarding supply of associated gas. In the meanwhile the Maharashtra State Electricity Board, in the context of current and future heavy shortages of power, is reported to have proposed installation of four more gas turbine units of 60 MW each to tide over future shortages.

The Government of India constituted a Committee in 1979 under the Chairmanship of Dr. T. R. Satischandran, Adviser (Energy), Planning Commission, for studying the allocation of gas for various purposes in detail. The Committee is reported to have recommended that gas should not be used for fuel purposes and, primary use of gas should be as fertiliser feedstock. It estimated that the fertiliser demand in tne country would rise rapidly and it would be necessary to set up and commission a 1,350 tpd. ammonia capacity fertiliser plant by 1985, along with balanced urea production facilities. It proposed that there should be a total of eleven such units; two at Thal-Vaishet in Maharashtra, three in Gujarat and two each in Rajasthan, Madhya Pradesh and Uttar Pradesh. Its recommendation is for supply of a total quantity of 5 million cubic metres a day of methane and, of this, the supply recommended to Thal and Trombay fertiliser units is of the order of 4.7 million cubic metres a day. This proposal also requires augmentation of Bombay High gas by South Bassein gas.

Present Position : The gas fractionation plant of the ONGC is under implementation. The Government of India has approved the Thal-Vaishet fertiliser project involving an outlay of Rs. 511.34 crores including a foreign exchange component of Rs. 230 crores. The oil exploration activities at Bombay High have been intensified and the World Bank has sanctioned 400 million dollars for this purpose. The Government of India has sanctioned setting up of an Aromatics complex by Bharat Petroleum Corporation Ltd. in Maharashtra. It has also approved setting up of petrochemicals complexes consisting of gas crackers and down-stream units at Usar near Alibag and Kavas in Gujarat. The Government has also announced, on the basis of available production of LPG from Mathura and Koyali refineries and from Bombay High associated gas, that about 12 lakh new domestic customers in the country would be given LPG connections beginning from the first quarter of 1981 to March 1982 and that at least 8 lakh new customers would be given connections in subsequent years upto 1984.

Petroleum Refineries : Of the five oil companies engaged in the refining and marketing of Petroleum Products in India, three are in Greater Bombay. Of the three oil companies in the city, the Bharat Petroleum Corporation Ltd. and the Hindustan Petroleum Corporation Ltd., both of which are in the public sector, have their refineries at Trombay. The third oil company, the Indian Oil Corporation Ltd. (IOC), has its registered office, Marketing Division and other establishments in Bombay. This Division is responsible for distribution of petroleum products produced by the four refineries of the IOC and two other public sector refineries at Cochin and Madras. It also handles crude imports as well as import of finished products. The IOC, established in 1960, has four refineries, one each at Gauhati (Assam), Barauni (Bihar), Koyali (Gujarat) and Halda (West Bengal), while its giant refinery at Mathura (U.P.) is under construction. The IOC's participation in the marketing of petroleum products in 1977-78 stood at 61.8 per cent of the sales in India. However, since its refineries are located outside Bombay, detailed account of its operations is not attempted here.

The Bharat Petroleum Corporation and the Hindustan Petroleum Corporation have their giant refineries and other establishments at Trombay. Besides the fuels Refinery, the Hindustan Petroleum has a Lube Refinery at Trombay. The account of the operations of the two corporations is narrated below.

Prior to the resumption of the narration of operations of the two oil companies, it may be noted that the statistics about the petroleum refineries in Bombay as per the Annual Survey of Industries in 1973-74 and 1975-77 are furnished in Table No 11. The statistics include the operations of the companies and their associates in Greater Bombay.

Bharat Petroleum Corporation Ltd.[1] : The Bharat Petroleum Corporation is now a wholly public sector undertaking of the Government of India with a huge petroleum refinery at Trombay in Bombay. The Bharat Petroleum has acquired complete ownership of the former Burmah Shell Refineries Ltd. with its refineries in Bombay and commercial interests in India in January 1976. The Bharat Petroleum is the second largest refinery in India with a 5.25 million tonnes per annum capacity and a nationwide marketing organisation. The Company's refinery went on stream on 30th January 1955 with an initial oil processing capacity of 2.2 million tonnes of Kuwait crude oil per annum.

The oil refining company of the former Burmah Shell Refineries, which was the private sector predecessor of the present Bharat Petroleum Corporation, was set up as a result of the agreement signed by the Government of India with the Anglo-Saxon Petroleum Company Ltd. (later replaced by the Shell Petroleum Company Ltd.) and the Burmah Oil Company on 3rd November 1952. It was subsequently converted into a public limited company on 26th August 1954. General construction work of the refinery commenced in February 1953 and the crude distillation unit came on stream on 30th January 1955. The refinery at Trombay was formally inaugurated in March 1955.

The important highlights pertaining to Burmah Shell Refinery, significant as they are from the point of view of the economic history of Bombay, are worth recording[2]. These highlights throw a side light on the development of this vital sector of the economy not only of Bombay but also of India. In 1955, the Burmah Shell processed 1.83 million tonnes of crude oil starting with the main bulk refined products. Bitumen was produced for the first time in June 1955. It commenced manufacturing liquid petroleum gas (LPG) and Motor Spirit MT 80 in 1956, and surrendered duty protection on motor spirit as a good gesture towards national interests. The commencement of manufacture of aviation turbine fuel in 1957 was a very important phenomenon in the context of import substitution for the vital source of energy which is so very essential for civil aviation and the Air Force. The company surrendered duty protection on high speed diesel oil, light diesel oil, furnace oil and bitumen in 1959, which was in the interest of the national exchequer. It commenced jute batching oil manufacture in 1961. The exploration of oil in the Ankaleshwar belt was an important event in the development of the national economy. The Burmah Shell commenced processing of Ankaleshwar crude together with Iranian light oil in 1962. The oil refining capacity of this concern was increased in 1963, and it processed 3.75 million tonnes of crude in the year. It commenced refinery gas supply to the

[1] Information supplied by the Bharat Petroleum Corporation (20th April 1982).
[2] Information supplied by the Burmah Shell Refineries Ltd. in 1974.

Fertilizer Corporation of India and the production of SBP 55/115 and motor spirit 93 octane in 1965. It further diversified its production by undertaking manufacture of carbon black feedstock, mineral turpentine and SBP 64/69 in 1966, which are important products from the point of view of industrialisation. Its crude throughout crossed the 4 million tonnes mark in that year. This oil refinery further helped the petrochemicals industry in the environs of Bombay by commencing deliveries of Naphtha to the National Organic Chemical Industries Ltd. by road lorries in 1967. It also started supply of hot heavy stock by pipeline to the Tata Thermal Station at Trombay in the year. In the next year it started supplying Naphtha to the National Organic Chemical Industries by pipeline. This facilitated cheaper supply of Naphtha to the petrochemicals industry.

The refinery achieved a refining capability of 5.25 million tonnes per annum in 1969. It achieved the highest ever middle distillate yield of 50.2 per cent weight on crude in conformity with the national interest in 1972. It commenced the processing of Indian Oil Corporation (IOC) crudes and achieved the highest ever refinery intake of 4.48 million tonnes in 1973. It was in 1974 that the Burmah Shell attained a refining capability of 5.5 million tonnes per annum.

Starting with only six major products, over the span of about 20 years, the refinery added 15 other products to its range. These products are required in various vital sectors of the national economy and defence services of the country. The refinery was the first in India to produce aviation turbine fuel, liquefied petroleum gas (popularly known as Burshane), bulk bitumen, and motor spirit 80 MT which is so very essential for the Indian Army. The yield pattern, it is claimed, had always been in consonance with the national requirements. The total foreign exchange savings, due to this company resulting from crude replacing product imports, amounted to about Rs. 254 crores upto the end of 1973. It also earned foreign exchange, which was so very essential for the national economy, to the extent of about Rs. 28 crores by exporting some petroleum products from its inception upto the end of 1973.

The Burmah Shell contributed its might towards import substitution and export promotion. In 1969, the refinery pioneered the formation of a Technical Development Committee for Indigenous Materials with a view to developing indigenous manufacture of a wide range of engineering materials, spares. and equipment to replace their imports. Import substitution achieved through this developmental activity saved foreign exchange of the order of Rs. 3 crores per annum to the member industries of the Burmah Shell alone in 1974. Foreign exchange saving to the national economy as a whole was much higher.

The refinery undertook an export promotion programme by exporting some products in 1972, and it was granted an " Export House " status in May 1974. Its exports comprised a wide range of products, for which the refinery acted as a bridge between the Indian manufacturers and its associate oil companies and other traders abroad.

The Burmah Shell Refineries Ltd. was linked with the Burmah Shell Oil Storage and Distributing Company of India Ltd. (Burmah Shell Marketing Company) through common shareholders. The Burmah Shell Refineries functioned as a Service Company to the Marketing Company whose crude it processed for a refining fee, and the entire production of refined products was marketed by the Marketing Company all over the country.

The refinery provided employment to 1,905 persons in 1960; 1,338 persons in 1970 and 1,204 in 1973. The approximate value of its production amounted to Rs. 35 crores in 1960 which increased to Rs. 58 crores in 1970 and to Rs. 1,07 crores in 1973.

The products of the Burmah Shell Refinery in 1974 comprised refinery gas, liquefied petroleum gas (LPG), Naphtha, motor spirits, special boiling point spirits, mineral turpentine, aviation turbine fuel, superior kerosene, high speed diesel oil, light diesel oil, fuel oil, jute batching oil, carbon black feedstock, hot heavy stock, bitumen and cutbacks.

Under permits of the Government of India and an agreement with the Indian Oil Company (IOC) the Burmah Shell obtained crude oil by imports from Iran, Iraq and Arabia.

The Burmah Shell Refineries with all its industrial and commercial interests in India was taken over by the Government of India by constituting the Bharat Petroleum Corporation Ltd. in January 1976. The latter is an autonomous commercial corporation under control of the Ministry of Petroleum, Chemicals and Fertilizers, Government of India. The account of its operations is given in the following paragraphs.[1]

The company's Refinery under aegis of the Burmah Shell went on stream on 30th January 1955 with an initial processing capacity of 2.2 million tonnes of Kuwait crude per annum. The crude processing capacity has since then been gradually increased to 5.25 million tonnes per annum. However, the maximum crude actually processed in a year was 5.01 million tonnes in 1979.

The refinery has made substantial technological advancements over its lifetime, resulting not only in increased processing capacity and flexibility, but also in improved product yields as well as reduced fuel

[1] Information supplied by the Bharat Petroleum Corporation Ltd., on 20th April 1982.

consumption and loss. There is, as a consequence, considerable technological flexibility, which enables this refinery to process a variety of Middle Eastern and indigenous crudes. In 1980-81, twelve different crudes were processed which included Sirri crude from Iran, El Morgan from Egypt and Romashkinskaya from Russia for the first time.

The refinery was also the first to process offshore Bombay High crude in 1976, and the share of Bombay High crude in the crude mix has risen from 61 per cent (2.87 million tonnes) in 1978-79 to 74 per cent (3.60 million tonnes) in 1980-81.

Besides Trombay, the Bharat Petroleum Corporation has six other main installations in India, namely, Kandla, Cochin, Madras, Calcutta, Shakurbasti (Delhi) and Bayappanahalli (Bangalore). The last two installations are inland, while the rest of them are ports. The Corporation operates 52 depots in various parts of the country. The company operates 150 tank-lorries, while it has licensed 987 tank-lorries owned by contractors. It has 3,315 retail outlets in various parts of the country. It employed 6,257 persons in September 1981.

The statistics of volume of trade and financial results of the BPC (Bharat Petroleum Corporation) are shown below. These are followed by an analysis of the highlights of the working of this corporation as reported by it, which has a vital role to play in the economy not only of Bombay but also of the country.

Volume of Trade

Year	Million Tonnes	Year	Million Tonnes
1976 ..	3.63	1979–80 ..	4.97
1977–78* ..	5.23	1980–81 ..	5.29
1978–79 ..	4.60		

(*15 months)

Financial Results

(Rupees in crores)

	1979-80	1980-81
Profit for the year before depreciation ..	32.53	35.62
Depreciation	7.71	12.51
Profit before tax	24.82	23.11
Provision for taxation	15.05	12.67
Profit after tax	9.77	10.44

(A) *Refining Division* : (*i*) *Safety Record* : In August 1975, the refinery completed 7 million manhours without a lost-time accident, which is believed to be a world record for petroleum refineries. After the

Government take-over, the refinery has again completed 4 million manhours without a lost-time accident on 1st January 1981.

(*ii*) *Environmental Improvement*: As a result of the increasing substitution of high sulphur fuel by low sulphur fuel and reduction in per cent fuel consumption, the average sulphur dioxide emission level in the refinery has been reduced to half over the last four years.

(*iii*) *Indigenous Development* : In 1970 the refinery pioneered the formation of a Technical Development Committee for Indigenous Materials for the petroleum, petrochemicals and fertilizer industries with a view to developing indigenous manufacture of a wide range of engineering materials, spares, equipment, etc. to replace their imports. Import substitution achieved through this development activity is presently saving foreign exchange to the extent of Rs. 6 crores per annum to the member industries alone. The savings to the national economy as a result of non-members benefiting from this development are much higher.

(B) *Marketing* : The year 1980-81 was yet another one of sustained growth. The total sales of the Corporation increased by 6·4 per cent to 5.29 million tonnes as compared to 4.97 million tonnes in the previous year. The turnover increased to Rs. 12,14.13 crores during the year 1980-81, as against Rs. 9,36.18 crores in the previous year. Its foreign exchange earnings through international aviation and bunker sales at Rs. 86.08 crores were higher by Rs. 13.09 crores as compared to the previous year.

As in the past, the Corporation continued its efforts towards improving the distribution of essential commodities in the rural areas. With this objective in mind, five Multi-Purpose Distribution Centres and three Farm Fuel Outlets were commissioned in 1980-81 raising their number to 74 and 34, respectively.

Bharat Petroleum has planned a number of major expansion and diversification projects with an estimated investment of about Rs. 350 crores over the next five years (1981-82 to 1986-87). Some of the plan projects are as given below :—

(1) *Debottlenecking of distiller and additional secondary processing facilities* : This project will increase the BPCL refinery capacity to 6 million tonnes per annum (for processing any combination of Bombay High and Middle East crudes), and will increase the middle distillate production by over half a million tonnes. Estimated total outlay of this project is about Rs. 134 crores, and it is scheduled for completion by October 1984.

(2) *Marketing of LPG* : The Bharat Petroleum Corporation has plans to significantly expand marketing of LPG in view of the additional quantities of LPG available from Bombay High, Mathura Refinery

and Koyali Refinery expansion. Under this project, a new LPG Filling Plant with a filling capacity of 75,000 tonnes per annum on a 2-shift basis was commissioned in its refinery at Bombay in 1979-80. A bottling plant of 24,000 tonnes per annum capacity has been commissioned at Delhi. A total of 8.7 lakh new domestic consumers will be enrolled by September 1984. A bottling plant with an annual capacity of 24,000 tonnes will also be commissioned at Coimbatore by mid-1983. The estimated outlay on this scheme is about Rs. 34 crores.

(3) *Production of Aromatics* : A project for the manufacture of 80,000 tonnes of Benzene and 21,000 tonnes of Toluene utilising 207,000 tonnes per annum of high aromatic Naphtha from Bombay High crude is under implementation. This Rs. 20 crore project will help in reducing the shortfall of Benzene and Toluene in the country, which are of vital importance for the growth of the petrochemicals industry. This project will help saving of foreign exchange to the national exchequer.

(4) *Additional Tankage* : To take care of the growth and to provide adequate storage facilities at various locations in the country, the corporation has planned to increase the tankage for crude and products investing about Rs. 50 crores in the next three to four years.

(5) *Bombay-Manmad Product Pipeline* : The Corporation has plans to lay a 245 km. pipeline from Bombay to Manmad to transport major products like diesel, kerosene and petrol, with an investment of approximately Rs. 45 crores. This will ensure an easy, quick and economic flow of petroleum products to the upcountry.

(6) *Sulphur Extraction Plant for Pollution Control* : A plant is planned to be installed in the refinery to convert sulphur dioxide into sulphur, thus reducing SO_2 emission and thereby minimising atmospheric pollution in the Trombay-Chembur area. The estimated outlay for this project is Rs. 4.5 crores. It will not only reduce pollution, but will also ensure production of elementary sulphur which is not available in the mineral form in India. Production of sulphur will thus save foreign exchange.

(7) *Aviation Fuel Hydrant System at Palam, Delhi* : To cater to the fuelling of aircraft at the proposed new international terminal complex at Palam Airport, the BPCL plans to design and construct a modern aviation fuel hydrant system with an investment of about Rs. 25 crores.

Hindustan Petroleum Corporation* : The Hindustan Petroleum Corporation Limited was formed as a public sector enterprise by nationalisation of the then ESSO Company along with its refinery at Bombay and

* The account is based on published brochures supplied by the Hindustan Petroleum Corporation (May 1982).

commercial interests in India in 1974. The Corporation was constituted into a commercial autonomous corporation under control of the Ministry of Petroleum, Chemicals and Fertilizers, Government of India. Later on in December 1976, the Caltex company's operations in India were taken over by the Government, and in May 1978, these were amalgamated with this Corporation. In 1979, Kosangas Company, engaged in the activities of bottling, distribution and marketing of liquefied petroleum gas was acquired and merged with Hindustan Petroleum Corporation. The combined resources, facilities and expertise of the enlarged corporation are a source of great strength for providing better service to consumers all over the country.

The Hindustan Petroleum Corporation has two oil refineries, one in Bombay and the other in Visakhapatham. The Bombay refinery has a capacity of 3.5 million tonnes per year. The capacity of the Visakh refinery is 1.5 million tonnes per annum. HPC's lubricating oil refinery at Bombay is capable of manufacturing about 200,000 tonnes of lube oil base stocks and other products annually.

Growth : At the time of the Government take-over, the ESSO were marketing about 2.5 million tonnes of petroleum products and the Caltex were marketing about 1 million tonnes of petroleum products. The total volume of petroleum products marketed by these two companies throughout the country was of the order of 3.5 million tonnes. As against this, the Corporation had set a target of marketing 6.827 million tonnes of petroleum products during the year 1983-84 which constituted about 92 per cent increase in volume since the Government take-over. The actual sales by the Corporation amounted to 5.59 million tonnes in 1980-81 as against 5.15 million tonnes in 1979-80. The rate of growth over a year was thus 8.4 per cent which appears to be quite good. The present share of HPCL in all India marketing of petroleum products in 1983-84 is of the order of 18.4 per cent and it is expected that the same will reach 20 per cent in the next few years.

In 1980-81, the Corporation completed seven years after the Government take-over of the erstwhile ESSO organisation's operating in India in 1974. The rate of growth of the HPC over a period of seven years was about 70 per cent. By any standards this is a spectacular rate of growth. To achieve these targets the network of the field sales organisations, storage capacity of the products at the terminals and depots and transport network for distribution had to be strengthened. The Corporation has also opened a large number of retail outlets largely in rural areas and on highways to provide better service to rural population. The Corporation has formulated a detailed plan to achieve a sales target of about 8 million tonnes by the end of the Sixth Plan period (1984-85), and an all out effort will be made to achieve the same.

The LPG produced by the erstwhile ESSO and Caltex companies was handled through their concessionaires who owned the LPG bottling plants, LPG cylinders and had organised a network of distribution and marketing. In May 1979, Government took over the Kosangas company, the major concessionaires of the erstwhile ESSO Co. and also took over the management of Parel Investment and Trading Co. and Domestic Gas Pvt. Ltd., the major concessionaires of the erstwhile Caltex Company.

At the commencement of 1980-81, the total produetion of LPG in the country was of the order of 5 lakh tonnes. During the next two years this production has almost doubled; the principal sources being Bombay High Associated Gas, Mathura Refinery, Koyali Refinery, etc. As a result of this availability of gas, the three major oil companies have already launched a massive enrolment programme of providing LPG to a large number of consumers all over the country. The Corporation enrolled over one lakh consumers during the latter half of 1980-81 and had hoped to enrol further 1.4 lakh consumers by the end of March 1982. Thereafter, it was to try to enrol about 2 lakh consumers each year. The total number of consumers planned to be serviced by the Corporation at the end of 1982, was expected to be 11 lakhs. To achieve this target, three new bottling plants of 25,000 tonnes capacity each, located at Bombay, Bangalore and Nagpur have been commissioned. A new bottling plant of 25,000 tonnes capacity is under construction at Hyderabad and the capacity of the Indore plant is being increased to 25,000 tonnes. At present the Corporation has 15 bottling plants spread all over the country.

A large investment has been made in tank-lorries, tank-wagons, LPG cylinders, etc. so as to achieve the new enrolment programme. The increased use of LPG would result in a corresponding saving in consumption of kerosene and to that extent the imports of kerosene would be minimised.

The growth in the Bombay refineries since the Government take-over is claimed to be quite satisfactory. By debottlenecking the secondary processing facilities it has been possible to increase the throughput at Bombay Fuels Refinery by one million tonnes. A number of other modifications such as the installation of a desalter, water cooling system, etc. are under implementation so as to improve the overall performance of the Bombay Fuels Refinery. The capacity of the Lube Refinery is being expanded.

So far as the Fuels Refinery at Visakh is concerned, a major reconstruction and modernisation programme has been taken so that it can continue to operate efficiently and economically.

Projects completed after nationalisation : (*a*) *Vacuum Pipestill/Catalytic Cracker Debottlenecking Facilities* : The project, costing Rs. 4.7 crores, was commissioned at Bombay refinery on January 18, 1978, resulting in

increased production of LPG and higher quantities of light and middle distillates. The entire project was designed, engineered and commissioned by HPC personnel. This has resulted in increased production of LPG (16,000 tonnes) as also light and middle distillates contributing to substantial foreign exchange savings of about Rs. 1.2 crores per annum.

(*b*) *Strategic Crude Tankage* : Four large-sized tanks having a total storage capacity of 315,000 tonnes were commissioned in 1979 in Bombay, at an investment of Rs. 7.8 crores. Another large tank was commissioned at Visakh in November 1980 by investing about Rs. 2.1 crores. This was to increase strategic crude storage to tide over possible interruptions during emergencies.

(*c*) *Hindustan Petroleum Corporation and Bharat Petroleum Corporation Integration Projects* : To maximise the processing of Bombay High Crude at Bharat Petroleum, various facilities were commissioned in 1978-79. This improved the yield pattern at both the refineries and also assisted in optimum utilisation of various downstream facilities available at these refineries.

(*d*) The Corporation has commissioned three new LPG bottling plants at Bombay, Bangalore and Nagpur each with a capacity of 25,000 tonnes per year. A large number of LPG cylinders, tank-wagons and tank-trucks have been procured, the total investment being Rs. 38 crores.

(*e*) A 18-kilometre pipeline of eight-inch diameter has been laid between the Bombay Refinery and Santacruz Airport for transportation of AIF, eliminating truck transport and relieving traffic congestion as also reducing atmospheric pollution, the total sanctioned investment being Rs. 2 crores. It will also avoid product contamination and product losses on account of transport in lorries.

Operations : *Refineries* : The Bombay Fuels Refinery achieved a crude throughput of 3.115 million tonnes during the year 1980-81 despite there being a pipe still turn-around of 35 days. In addition to the crude, 86,500 tonnes of waxy distillates produced by the Bharat Petroleum Corporation from Bombay High (BH) crude were reprocessed by the refinery as against 62.600 tonnes in 1979-80. The refinery also achieved the highest ever production in motor spirit, high speed diesel oil and industrial diesel oil. The total distillates (including Lubes) recovery was at 69.2 weight per cent.

The Visakh Refinery had achieved a throughput of 1.319 million tonnes in spite of processing twelve different types of crudes, as against the highest throughput of 1.329 million tonnes in 1978-79. Production of LPG was at an all time high since the starting of the refinery. The total distillates recovery was at 70.1 weight per cent in 1980-81 as against 68.8 per cent in 1979-80.

The Lube Refinery at Bombay achieved a production of 180,000 tonnes consisting of Neutrals Lube Oil Base Stocks and Transformer Oil Base Stocks during 1980-81, despite a VPS shutdown of 68 days, as against 193,000 tonnes in 1979-80. Crude affreightment operations for the HPC/BPC, Bombay Refineries were carried out satisfactorily during 1980-81. A total of 5.44 million tonnes of imported crude was transported in 1980-81 as against 5.1 million tonnes in 1979-80. Bombay High crude was also transported to Vadinar on behalf of Indian Oil Corporation.

Marketing : The market sales of petroleum products at 5.592 million tonnes in 1980-81 show an increase of 434,000 tonnes as against 5.158 million tonnes of 1979-80. The industry sales of petroleum products showed an increase of 3 per cent over the consumption of 1979-80. However, the Corporation was able to maintain a growth of 8.4 per cent in 1980-81 over the previous year's figures. The sale during 1983-84 were 6.49 million tonnes.

LPG Marketing : In accordance with Government's policy, the Corporation has drawn up plans for rationalising the LPG distributorships, and all sub-dealers in the erstwhile concessionaires who are found suitable are being appointed as direct dealers of the Corporation for the distribution of LPG. Consequent upon the availability of LPG from Bombay High and other sources, the oil companies took up, during 1980-81 a massive programme of providing new LPG connections to about one million consumers. The share of the Corporation in this was about 25 per cent.

Major Projects under Implementation : (*a*) *Lube Refinery Expansion* : This project envisages the expansion of the capacity of the Lube Refinery at Bombay by 74,000 MT of high viscosity index Lubes at a cost of Rs. 14.3 crores. It was to be commissioned in June 1983 with an investment of Rs. 17 crores. The project is particularly important as it would go a long way in meeting the increased requirements of lube oil, and will save the country Rs. 15 crores in foreign exchange per annum.

(*b*) *Visakh Refinery Expansion* : The all India demand estimates for petroleum products in the 80s indicate that the country will have a deficit of middle distillates of the order of eight million tonnes by 1987-88. This calls for urgent action in providing additional crude processing capacity in the country, especially in the southern region where the deficit is much more pronounced. The proposal to increase the capacity of Visakh refinery from 1.5 million tonnes to 4.5 million tonnes is an important effort in the direction of self-sufficiency. The expansion is so designed that it can process upto 3.00 million tonnes per year of Bombay High crude. The project was scheduled for completion in 1984-85, and the total cost is now estimated at about Rs. 119 crores. The value of petroleum

products in foreign exchange will be to the tune of about Rs. 134 crores per annum after completion of the project.

(*c*) *Bombay-Pune Pipeline* : The 158 km. product pipeline from Bombay to Pune, estimated to cost Rs. 56 crores, will provide considerable economic advantage over an alternative method of transporting products by rail. The proposed pipeline, on which work is already in progress, will be an important landmark in the efforts to transport petroleum products to regions south of Bombay.

(*d*) *Sulphur Recovery Projects* : The Chembur area is known for its high level of atmospheric pollution. The Corporation sharing the concern of the Government and the people for environmental conservation, has taken up a project to reduce sulphur dioxide emissions from the Bombay refineries. The sulphur recovery project, with a current estimate of Rs. 4 crores is under implementation and is expected to be completed by 1983. In addition to containing sulphur dioxide emissions, this project will also result in the production of sulphur of the order of 4,000 metric tonnes per annum. The sulphur to be recovered from the hydrogen sulphide rich streams at HPC's Bombay Refinery would save foreign exchange to the tune of over Rs. 22 lakhs per annum.

There are also a number of comparatively smaller projects such as replacement of crude furnace, increasing tankage capacities at the refinery and in terminals which are under implementation.

Major Projects under consideration : *(a) Expansion of Bombay Refinery* : To utilise the increased production of crude oil from Bombay High, the Corporation has submitted a proposal to the Government for the expansion of the Bombay Fuels Refinery by two million tonnes. The feasibility report of this project envisages that it should be possible to complete this project without secondary processing facilities in about 30-33 months, with an investment of approximately Rs. 45 crores. The expansion is scheduled for completion in April 1985.

(*b*) *Crude Oil Discharge Pipeline at Visakh* : The capacity of the Visakh refinery is being increased from 1.5 to 4.5 million tonnes. This refinery has been designed to use both imported and Bombay High crude which will be transported by LR tankers. To avoid lighterage operations and reduce crude freight costs, it is proposed that an oil jetty be established at the Visakh outer harbour and a new crude oil discharge pipeline be constructed so that crude oil can be pumped directly from LR tankers to the refinery. While the construction of the oil jetty at the outer harbour is being taken care of by the Visakh Port Trust, the cost of crude oil discharge pipeline which is currently envisaged at about Rs. 14 crores will be on HPC's account. The project is scheduled for completion by September 1985.

Among the new major projects which are under consideration of the Corporation and for which investment proposals are being formulated for the consideration of the Government are as under :—

(*a*) Manufacture of Bright Stocks in the Lube Refinery at Bombay;

(*b*) Increasing the production of Hexane at Bombay Fuels Refinery; and

(*c*) Some downstream projects like recovery of propylene.

The Corporation undertook a study of a number of expansion and diversification projects with a view to meet the requirements of the country and minimise the need to import petroleum products. These are under consideration of the Corporation and the Government.

Energy Conservation Programme : The spiralling cost of energy and restricted availability of oil have made energy conservation a national priority, whether it be in industry, transportation or domestic consumption. Over the last few years, several steps have been taken at the two operating refineries at Bombay and Visakh to improve energy productivity. This has been achieved by setting up " energy conservation cells " which continuously monitor the scope and further energy saving measures through " energy audit " exercises. The action plan has been drawn up under the following two broad heads :—

(1) Energy conservation through operational improvement.

(2) Energy conservation through investment in capital projects.

Operational improvement by its very nature is a continuing activity, to keep the refineries at its peak efficiency and benefits start flowing immediately on implementation of certain actions. Examples of some of the programmes implemented in this category are :

(*i*) Combustion efficiency-monitoring of furnaces.

(*ii*) Monitoring of preheat exchanger systems for optimum utilisation of all available heat.

(*iii*) Utilities monitoring through steam leak surveys and prompt remedial action; efficient maintenance of steam traps etc.

(*iv*) Corbelling on furnaces.

(*v*) Replacing of gland packings of all hydrocarbon pumps with mechanical seals.

Capital projects for energy conservation on the other hand, involve substantial investment and sometime lag for benefits to accrue, but their savings potential may be quite considerable. Some of the projects taken up by the refineries under this head are :

(*i*) Outboard Convection Bank for crude furnace at Bombay Refinery.

(*ii*) Crude Preheat Exchangers.

(*iii*) Crude Desalters at both refineries.

(*iv*) Replacement of old furnaces and boilers with new ones for higher efficiencies to meet international standards of efficiency.

A careful energy accounting or "audit" for each of the refining processes is planned to be an important and continuing phase of the Corporation's activity for identifying further areas of energy conservation. It is also the endeavour of the Corporation to optimise energy utilisation at the refineries since, apart from resulting corporate benefits, energy conservation is a national priority.

ELECTRICAL MACHINERY, APPARATUS AND APPLIANCES

Consistent with the increasing demand for electric power and expanding electrification the demand for electrical equipment of various types, such as generators, transformers, switchgears, transmission line towers, ensulators, electric motors, etc. gathered momentum. The growth of this industry was a natural outcome of the tremendous efforts of the country towards self-reliance and import substitution. It is now one of the most important industries which has a significant role to play in shaping the industrial and agrarian economy of the country, as also the destiny of the vast Indian multitudes. Electrical machinery and appliances have contributed not only towards achieving comforts and enrichment of individual life of the people but also towards enrichment of the industry and the agrarian economy of India.

The expansion of this industry is not confined to the private sector. The public sector has also contributed to the basic growth of the heavy electricals industry in India. Though there is no public sector project in this industry in Bombay, the private sector industry in the city grew very rapidly on account of the development of public sector projects elsewhere in the country.

The light electrical industry, manufacturing electric lamps, fans, radio sets, television sets, meters, capacitors, condensers and a wide range of electrical appliances progressed rapidly since the inception of this industry in Bombay. The requirements of equipment for generating stations was initially met through imports. In order to restrict inports and achieve self-reliance, manufacturing facilities for large turbines and generators were established indigenously. Facilities for indigenous manufacturing of important accessories like boilers, feed water pumps, electrostatic precipitators, etc. were established in the public as well as private sectors. The private sector was also permitted by the Government to manufacture industrial turbo-sets upto 300 K.W. The entire demand for generating equipment excepting some hydro-electric generators is progressively met from indigenous sources. Even generators for nuclear power stations are now being supplied by indigenous manufacturers. Development work on 500 M.W. turbo-generators has already been taken up in hand to ensure that the demand for turbo-generators with higher unit ratings would be met indigenously during the Sixth Five-Year

Plan. The demand for industrial turbo-sets used in textile, cement and sugar industries is also met from indigenous sources now.[1]

Since electrical machinery and apparatus manufacturing is a very important industry of Bombay it may be of immense interest to give its account at the microlevel.

The Crompton Greaves Limited established in 1937 is one of the pioneers in the electrical machinery and appliances industry not only of Bombay but also of India. It has four factories in Bombay, and it manufactures a very wide range of articles, such as industrial motors, fractional horsepower motors, control gears, electrical transformers, alternators, switchgears, instrument transformers, tap changers, switchboards, lamps, tubes, carbon and float switches, fuse switches, and a number of other articles. The Company has a recognised Export House and has a full-fledged International Division with a network of concessionaires and dealers in many countries.

The Larsen and Toubro established in 1938, manufactures electrical switchgears and other equipment and electronic controls. The Siemens India, established in 1957, has factories at Worli and Andheri in Bombay, besides, four units elsewhere. It is also one of the pioneering concerns in this industry manufacturing switchgears, railway signalling relays, switchboards, electric motors, electro-medical equipment, railway signalling equipment and instrumentation equipment. The Ralliwolf Ltd. (1958) with a factory at Mulund is known for the production of special purpose electric motors and electric tools. The National Electrical Industries, established in 1945, produces electric motors upto 1000 H. P., motorised grinders, polishers, and monoblock pumps and other apparatus. The Industrial Meters Pvt. Ltd. with factories at Kandivli and Lower Parel is a manufacturer of transformers and other electrical machinery. It was incorporated in Bombay in 1961. The Hindustan Klockners Switchgear Ltd., established in 1957, has a plant at Borivli which manufactures various types of starters, push button stations, limit switches, remote control devices, and a range of electrical machinery. The Hindustan Brown Bovery (1949) with a factory at Goregaon, the Macneill and Magor Ltd. (1949), the Kiron Industries (1951) with a plant at Mazgaon and the Morarji Dorman Smith Ltd. incorporated in 1961 (plant at Worli) are the manufacturers of electrical machinery and various types of equipment in Bombay. Then there is the Guest Keen William, incorporated in 1931, with two units at Bhandup which produces electrical steel stampings, laminations, precision pressed metal components, and other articles which are essential for generation and distribution of electric power. It meets the increasing demand of the electrical industry in Bombay as in other parts of the country. The Otis Elevators Co. (India) was incorporated in 1953, and

[1] Indian Electricals Manufacturers' Association, Directory, 1974.

has a factory at Kandivli which manufactures lifts of various types and escalators. These are highly in demand at present. There are many other factories in Bombay, though it may not possible to mention them all.

The growth of this industry dates back to 1937. It received tremendous stimulus in the post-Independence period. The stimulus was provided partly by the expansion of rural electrification and partly by the rise in demand by other industries and consumers. The industry in Bombay as in India made a steady progress with only short-lived aberrations.

It may be useful to analyse the principal characteristics of the industry in Bombay as per the Annual Survey of Industries of 1975-77 and to compare it with the industry in Maharashtra. The industry in Bombay comprised 454 factories which formed 71.99 per cent of units in the State. It provided employment to 37,277 persons or 63.86 per cent of the employment in the State. The capital invested in the factories in Bombay was to the tune of Rs.1,43,58 lakhs or 60.82 per cent of that in Maharashtra. The output of electrical machinery, apparatus and appliances in Bomaby was valued at Rs. 2,74,99 lakhs or 65.40 per cent of the production in Maharashtra. The value added on manufacture was as high as Rs. 68,90 lakhs or 65.87 per cent of that in Maharashtra.

It can be deduced from this analysis that nearly two-thirds of the electrical machinery, apparatus and appliances industry in Maharashtra is concentrated in Bombay alone. The average employment per factory was about 82.

This industry ranked third in Bombay as regards invested capital and value added on manufacture, and fourth as regards value of output.

The account of some of the segments of the industry is given below.

ELECTRICAL INDUSTRIAL MACHINERY

The Annual Survey of Industries has grouped together the various segments of this industry, such as, electrical motors, generators, transformers, electric magnetic clutches, and brakers, etc. As per the Survey of 1973-74 and 1975-77, there were 230 and 167 registered factories in Bombay, respectively in the years referred to. The total employment in the industry which stood at 22,831 inclusive of 17,099 workers in 1973-74 declined to 18,968 inclusive of 13,350 workers in 1975-77. This decline appears to be commensurate with the decline in number of factories. The position as regards capital of the industry is given below. The figures represent annual averages in the respective survey periods :

Item	1973-74	1975-77
	(Rs. in lakhs)	
Fixed capital	23,90.88	30,64.55
Working capital	35,17.67	39,30.72
Capital invested	63,57.68	82,01.60
Outstanding loans	36,99.94	31,23.00

The position of capital shows that in spite of fall in number of factories and employment, there was a conspicuous rise in capital. It can therefore, be deduced that only the small marginal units might have wounded up, while some units might have increased their capital investment.

Despite the fall in employment, there was a rise in total emoluments from Rs. 17,58.05 lakhs in 1973-74 to Rs.19,81.40 lakhs in 1975-77. The factories consumed fuel worth Rs. 1,27.97 lakhs in 1973-74 and Rs. 1,67.78 lakhs in 1975-77. The factories worked for 56,72,165 man-days per annum in 1975-77 period. The raw material consumption of the factories declined from Rs. 82,31.05 lakhs to Rs. 74,01.08 lakhs over the years under study. The other inputs of the factories in 1975-77 were of the order of Rs. 33,86.60 lakhs. The value of total inputs increased from Rs. 91,75.79 lakhs in 1973-74 to Rs. 109,55.46 lakhs per annum in 1975-77. It can safely be said that there was no real decline in the industry in this period.

The value of plant and machinery also increased from Rs.19,58.99 lakhs to Rs.24,66.84 lakhs in the period under study.

The position of output and production of the industry in Bombay is given below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Value of products ..	1,30,64.47	1,29,47.49
Other output ..	N.A.	31,60.40
Total output ..	1,33,63.74	1,61,07.89
Depreciation ..	2,66.34	2,94.21
Value added on manufacture ..	39,21.60	48,58.21

It can safely be deduced that the total output and value added showed a conspicuous rise despite the fall in employment and factories. The marginal and small units might have been forced to close down, while those efficiently managed must have expanded.

The factory payments in the industry were worth Rs. 4,79.88 lakhs and the income was computed at Rs. 43,78.33 per annum in 1975-77.

The higher ratio of total output to total inputs shows the high profitability in this industry in Bombay. The value added was about 21 per cent of the total inputs in the industry. It also shows the satisfactory position of the industry. It is also borne out by observations that the electrical industrial machinery is a growing industry. Some major industries including cotton textile, even some of the engineering industries went through periods of stagnation. But the electrical industry always maintained a pace of growth despite short-lived aberrations. The products

of the industry enjoy a ready market in the country, while the quantum of exports is also increasing progressively. Many of the products of the Bombay industry are comparable to international standards, and have found an acceptance in many countries.

The account of the various groups of this industry is given below.

ELECTRIC MOTORS

Manufacture of electric motors is an important segment of the electrical machinery industry of Bombay. The phenomenal growth of this industry is directly related to growth of industrialisation and improvement in agrarian technique in the country. The balanced industrial and agricultural development in the country depends upon a reliable source of motive power meeting the characteristics required by the driven equipment. The electric motor industry caters to the demand from diverse industries, such as textile, sugar, chemicals, mining, cement, etc., which require electric motors for diverse functions. Agrarian progress on account of rising irrigation facilities has directly increased the demand from agriculturists who are now found to install motor pump-sets in increasing number. The use of various gadgets relieving the hard manual work is increasing the demand for general purpose motors. The manufacture of sophisticated machine tools required special purpose motors including servo motors working to close tolerances and having characteristics to meet the requirements of sophisticated and closely controlled high output machine tools.

The electric motors industry in Bombay meets the general and special requirements, and the manufacturing range covers motors from 0.75 K.W. to 5,000 K.W. for D.C. machines and upto 10,000 K.W. for A.C. machines. Electric motors are manufactured also in various insulation classes, enclosures, mountings, and for normal or heavy duty industrial applications.

The history of electric motors industry in India dates back to the establishment of a firm at Coimbtore before the Second World War. A Bombay firm next entered the line. Two more units in the country were started during the war. Bombay provided a congenial home to this industry in the post-Independence period. A number of concerns, some of them with foreign collaboration, undertook manufacturing electric motors in Bombay.

The industry was granted tariff protection for the first time in 1948, and the Tariff Board (later Tariff Commission) held four enquiries in regard to continuance of protection. The industry enjoyed tariff protection for a considerable time. In 1961-62 there were five large-scale units in Maharashtra, while there were several small-scale units in Bombay.[2]

[1] *Handbook of Commercial Information*, 1963.
[2] Ibid.

The industry requires mainly pig iron, steel, silicon steel, stampings, copper wires, aluminium ingots, insulating materials and ball bearings as raw materials. The imported components are now progressively substituted by indigenous ones.

The Crompton Greaves Ltd. established in 1937 is one of the largest manufacturers of industrial electrical motors, fractional horsepower motors and a wide range of electrical machinery. It has four plants in Bombay at Prabhadevi, Worli, Kanjur Marg and Bhandup. It has an installed capacity to manufacture 8·40 lakh electrical motors, the actual production in a latest year being 6·99 lakhs.[1] The Siemens India Ltd., established in 1957 has factories at Worli (near Television Centre) and Andheri, besides others at Kalwe, Nasik, Calcutta and Bangalore. It manufactures electric motors, and a wide range of electrical machinery including switchgears, railway signalling equipment, electro-medical equipment and instrumentation equipment. It has an installed capacity to manufacture fifteen thousand electric motors per year. The Ralliwolf Ltd., with a factory at Mulund manufactures special purpose electric motors, besides a number of electric tools. It has an installed capacity to produce 12,200 motors, the actual production in a latest year being 11,968 motors.[2] The National Electrical Industries, established in 1945 has a plant at Lalbaug, besides another factory at Pune. It manufactures electric motors upto 1,000 H.P. besides motorised bench grinders, polishers, pedestal grinders and monoblock pumps.[3] There are many other concerns engaged in this industry in Bombay.

ELECTRIC TRANSFORMERS

Transfomers perform an essential function in distributing electricity by stepping up the voltage at generating stations and stepping it down at consuming points. The origin of the electric transformer manufacturing industry in India can be traced back to 1936–37 when the Government Electric Factory, Bangalore, a State Government enterprise, started manufacturing transformers. At the beginning of the Second World War this was the only unit in the country. Between 1941 and 1943 three more firms commenced production, one each in Bombay, Calcutta and Lahore. After Partition of India in 1947, the Lahore unit was shifted to Bombay. In 1951–52, there were two units in Bombay out of the seven factories in India. Their number increased to five by the end of the Second Five Year Plan.[4]

The former Planning Department of the Government of India constituted an Electrical Machinery and Equipment Panel in 1945, which encouraged the growth of transformer manufacturing industry. All kinds

[1] *A State-wise Pictures of Large Scale Industrial Activity*, 1981.
[2] Ibid.
[3] IEMA (Indian Electrical Manufacturers' Association Directory), 1974.
[4] *Handbook of Commercial Information*, 1963.

of help was extended to entreprenures with an objective to encourage the growth of the indigenous industry.

The transformer industry made significant progress during the sixties and seventies. The expanding elertrical network required a large number of power and distribution transformers in various ratings and voltage classes. Now the demand is met in full from indigenous sources. The Bombay industry is said to be operating on sound foundations. The transformers upto 220 KV and rating upto 250 MVA was initially, manufactured indigenously. The manufacturing range has now been extended to voltage ratings upto 400 KV to cater to the needs of 400 KV transmission line system.

The demand for special type of transformers such as booster and traction transformers for railway electrification, non-inflammable and dry type transformers for mining, furnace transformers for metallurgical industry, rectifier transformers for chemical and electro-metallurgical industries and welding transformers are now being manufactured. The quality of the transformers manufactured has found widespread acceptance in international markets. Hence the export of transformers is increasing rapidly from year to year.*

The Crompton Greaves, established in 1937, has four plants in Bombay, *viz.*, at Kanjur Marg, Bhandup, Prabhadevi and Worli. It is a renowned manufacturer of transformers of various kinds, and has an installed capacity to manufacture 30 lakhs of transformers per annum. The Industrial Meters Pvt. Ltd., established in 1961 manufacturer's transformers and other electrical machinery. It has two factories in Bombay, at Kandivli and Lower Parel. The National Electrical Industries Ltd. is an old company established in 1945. It has a factory at Lalbaug and another one in Pune. It Produces transformers with a very high voltage capacity. There are many other manufacturers in Bombay in this line of industry, though it may not be possible to mention them all in this brief review.

The raw material essential for production of transformers includes hot rolled and cold rolled silicon steel sheets, copper strips and wire, porecelain bushings, cooling tubes, mild steel sheets, transformer oil, paints and a wide range of insulating material and fasteners. Though most of these items are indigenously available, a few components are imported.

SWITCHGEAR

Switchgear is a generic term which covers all apparatus for controlling and regulating the supply of electricity and ensuring its distribution and use. It ranges from the several types of switches employed in making and breaking electrical circuits under normal conditions to fuses and circuit breakers which operate under normal loads for operating the power circuit. Circuit breakers are safety devices and are usually of two types,

* Indian Electrical Manufacturers, Association Directory, 1974.

air breakers and oil immersed. Fuses are used as circuit breakers in low voltage electric circuits.

Manufacture of switchgear and control-gear developed only during the Second Five-Year Plan. The expansion of electrical network and inter-connection between the State grids and generating stations required reliable protective equipment giving protection within stipulated graded timings and capable of clearing faults of increasing proportions. Installation of high tension transmission voltages demanded protective equipment suitable for operating at those high tension voltages. The manufacturing range of circuit breakers is being extended to 400 KV. The industry also offers auxiliary switchgear and protective equipment such as isolators, protective relays, instrument transformers, etc.

The industry also manufactures industrial type switches and switchboards for low tension distribution and protection, motor starters, motor control centres and process control equipment.

Bombay provided a congenial home to this industry. The Siemens India Ltd., incorporated in 1957, is a pioneering concern manufacturing switchgears of various kinds and capacities in Bombay. It has an installed capacity to produce 19.21 lakh switchgears per annum, the actual production in a latest year being 14.57 lakhs.[1] The concern has taken up an ambitious expansion and modernisation programme. The Crompton Greaves which has a big name in electrical industries is another manufacturer in this field. The Hindustan Klockner Switchgear Ltd., incorporated in 1957, has a factory at Borivli. It manufactures standard starters, starters for special applications, push button stations, limit switches, remote control stations, special starters for machine tool controls and a variety of equipment. The Larsen and Toubro Ltd. with a plant at Powai, also manufactures switchgears, and other electrical equipment and electronic controls. The Kiron Industries Ltd., with works at Mazagaon, was established in 1951. It produces high voltage isolators upto 220 KV, switchgears, panel boards, distribution switchboards and high tension and low tension cable boxes. The Morarji Dorman Smith Ltd., incorporated in 1961 has a plant at Worli which produces miniature circuit breakers and distribution boards.[2] The Hindustan Brown Bovery with a factory at Goregaon and the Macneill and Magor Ltd., are also engaged in this industry in Bombay.

The factories require extruded steel sections, extruded brass and copper sections, phosphor, bronze, spring steel, wires, strips, special silver alloy, insulating bars and tubes, porcelain and steatite bushings and electrical grade thermosetting moulding powder. These materials are increasingly manufactured in the country, though formerly they were imported.

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.
[2] IEMA, op. cit. 1974.

CAPACITORS AND CONDENSERS

This is comparatively a small industry, and the products are manufactured by the big companies producing a wide range of electrical machinery and equipment, as also by small units. Some of the factories in Bombay produce capacitors required for power factor improvement with associated control-gears for rating upto 33 KV. In addition, furnace capacitors, condenser bushings, starting and running capacitors for electric motors, fans are also manufactured.

OTHER ELECTRICAL EQUIPMENT

The electrical industry in Bombay is also engaged in production of various ancillary equipments for power generation, transmission, distribution and utilisation of electrical energy. This equipment includes insulators and bushings, diesel generating sets, welding generators, welding transformers, welding rectifiers, spot welding machines, electric house service meters, measuring and controlling meters, and instruments.

Electric meters manufacturing is one of the segments in the electrical industry in Bombay. The industry grew in Bombay after 1955 in which year the first factory in the city was established. The Industrial Meters Pvt. Ltd., incorporated in 1961, has two plants at Kandivli and Lower Parel. It manufactures electrical measuring instruments and other equipment. The Malik Meters Pvt. Ltd. started in 1967 is another producer of meters and electric measuring instruments in Bombay.*

ELECTRIC WIRES AND CABLES INDUSTRY

This industry is conceived to manufacture a wide range of insulated wires and cables of various specifications. As per the Annual Survey of Industries there were 45 registered factories providing employment to 3,339 employees including 2,412 workers in Bombay in 1973-74. The number of factories declined to 23 providing employment to 2,084 persons including 1,437 workers as per the survey of 1975-77. The fall in employment was almost commensurate with that in the number of factories. The structure of capital of the Bombay industry can be studied from the following figures (The figures are annual averages in the respective survey periods.):—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	3,81.66	4,22.20
Working capital	3,42.24	5,54.95
Capital invested	11,05.17	12,62.52
Loans outstanding	75,51.16	9,72.19

* IEMA, op. cit., 1974.

The decline in number of factories and employment was thus not accompanied by a decline in capital investment in the industry. The factories worked for 634,702 man-days per annum as per the 1975-77 survey. In spite of the fall in employment there was a rise in the total emoluments from Rs. 1,73.34 lakhs in 1973-74 to Rs. 2,34.00 lakhs per annum in 1975-77. The wages to workers also rose from Rs. 94.41 lakhs in 1973-74 to Rs. 99.53 lakhs in 1975-77 period. This might be due to general rise in wages and dearness allowance. It can definitely be said that the share of wages to workers is much less in the total emoluments paid by the factories. This can be attributed to the preponderance of technical personnel and managerial personnel over workers.

The factories consumed fuel valued at Rs. 30.77 lakhs in 1973-74 and at Rs. 51.42 lakhs per annum in 1975-77. They consumed material worth Rs. 22,65.02 lakhs and Rs. 22,38.06 lakhs during the years under study. The total inputs of the factories were to the tune of Rs. 24,46.90 lakhs in 1973-74 and Rs. 24,62.52 lakhs in 1975-77, the rise being very meagre. The other inputs of the factories, which are available for the 1975-77 survey period, were worth Rs. 1,73.05 lakhs. The value of plant and machinery was computed at Rs. 6,91.42 lakhs and Rs. 7,87.92 lakhs in the years under reference. The structure of the output of the industry in Bombay is shown below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Value of products	27,78.23	28,61.36
Other output ..	N.A.	50.51
Total output	28,66.91	29,11.87
Depreciation	55.35	50.86
Value added on manufacture ..	3,64.64	3,98.49

The above figures bring home some conclusions. The total output of the industry comprises the main products *viz.*, wires and cables, while other bye-products are only of meagre value. The decline in the number of factories and employment was not reflected in output as the value of products and total output registered an increase over the period under study. The ratio of value of inputs and output shows the satisfactory position of the industry. The value added on manufacture is almost one-third of the capital investment in the industry, while it is almost 96 per cent of the fixed capital of the factories in Bombay, in 1975-77.

The factory payments of the companies were computed at Rs. 1,58.37 lakhs and the net income at Rs. 2,40.12 lakhs per annum as per the survey of 1975-77.

From the above analysis it can be deduced that wire and cable manufacturing in Bombay is more of a capital intensive rather than a labour intensive industry.

The electric wires and cables industry broadly covers the manufacture of, (*i*) bare and reinforced conductors, chiefly of copper and aluminium, (*ii*) rubber or plastic insulated electrical installation cables, (*iii*) cotton, silk or enamel covered electrical winding wire for instruments, (*iv*) paper insulating power cables, and (*v*) dry core telecommunication cables.

The industry commenced in India in 1923 with the manufacture of bare copper conductors and rubber insulated cables and flexibles by a factory at Tatanagar. In the initial stage, the Calcutta firm which owned the factory was helped by Government by duty-free imports of electrolytic copper rods for manufacture of electric cables and wire.* The industry expanded during the Second World War when foreign supplies were curtailed and the growth of indigenous industries and domestic demand increased considerably.

The growth of the industry in Bombay started from middle of this century. Since then the demand for various cables and wires continued to rise progressively, and new units came into existence to manufacture bare copper conductors, plastic coated copper and aluminium wires, rubber sheathed cables and P.V.C. coated wires. It is now a well-established industry and practically all needs of overhead transmission lines, underground transmission and power distribution network are met by the local industry. In the field of cables, India is one of the pioneer countries to introduce aluminium as conductor for underground cables. The progress made by the local industry has found acceptance in the world market and PILC/PVC power cables with aluminium conductors are now exported to many countries. The progress in the production of PVC, polythene and cross-linked polythene coated cables is remarkable. At present, underground cables upto 33 KV rating are manufactured indigenously. The industry is also meeting the domestic demand for a variety of cables like mining, trailing, shot firing, aerial cables, etc.

The increasing demand for sophisticated electrical equipment required usage of winding wires and strips insulated with enamels or covered paper, cotton, fibreglass etc. The winding wire industry is meeting all such diverse needs.

The Ajit Wire Industries at Andheri (East), established in 1949, undertook the manufacture of enamelled copper wire in 1955. This firm in Bombay is now one of the pioneers in the line in India, and it manufactures enamelled copper wires according to British and Indian standard specifications. This unit was the first to manufacture enamelled aluminium

* *Handbook of Commercial Information*, 1963.

wire in India in 1962. It has an up-to-date laboratory and modern machinery and testing equipment which ensures super enamelled copper wire of good quality. It supplies good quality wires to the reputed electric and electronic manufacturers in Bombay as well as those in India. This concern was the first to go overseas to offer technical know-how for the manufacture of enamelled copper wires to Messrs. Magnet Wires and Electricals Ltd., Kuala Lumpur, Malaysia. Its technical collaboration with the latter Malaysian firm started in December 1971.[1] It is gratifying to note that this Bombay firm has extended technical collaboration to a foreign firm in this complicated sector of industry.

The Devidayal Electronics and Cables Ltd., established in Bombay on 15th January 1953[2] is another reputed large manufacturer of enamelled wires and cables in Bombay. It manufactures super enamelled wires and strips, steel and alloy steel wires, covered wires and strips, insulating enamels, nickel chrome alloy strip wires etc. Besides its original established factory at Reay Road in central Bombay, it has set up a new plant at Pokhran Valley near Thane in 1960. It has recently undertaken a phased programme of modernisation.

The Hindustan Transmission Products, with a factory at Chandivli in Bombay, was originally established in 1940. The products manufactured include super enamelled copper wire, insulated wires and strips, magnet wire enamels, synthetic resins and insulating varnishes.[3] It is one of the old concerns in this industry in Bombay.

The Power Cables Pvt. Ltd., with a factory at Mahul near Trombay, was established in 1958.[4] It manufactures electric cables and wires, conductors, welding electrodes, PVC compounds, iron and steel wires, insulating oils and a number of other products.

The Cable Corporation of India has a factory at Borivli (1957) and is one of the large-scale manufacturers of cables of various specifications. The sales turnover of this unit was to the tune of Rs. 14.63 crores in 1978-79 and Rs. 31.42 crores in 1979-80. It has an installed capacity to produce 1,600 kilometres of insulated cables and 9,144 kilometres of PVC insulated cables and wires per annum.[5] The concern is owned by one of the leading industrial houses in India.

ELECTRICAL APPARATUS, APPLIANCES AND OTHER PARTS

This is a very important segment of the electrical apparatus and appliances industry in Bombay, the products of which occupy an honoured

[1] IEMA Directory, 1974.
[2] Ibid.
[3] Ibid.
[4] Ibid.
[5] *A State-wise Picture of Large Scale Industrial Activity*, 1901.

place in modern conditions of living. It is mainly a consumers goods industry which is conceived here, for the purposes of analysis, to cover the manufacture of electrical appliances, apparatus and other parts inclusive of electric lamps, bulbs, fluorescent tubes, sockets, switches, electric fans, insulators except porcelain, conductors, electric irons, heaters, shavers, cleaners and many other articles of consumers interest. This concept of the coverage of the industry accords with the classification adopted in the Annual Survey of Industries, the statistics of which are analysed below.

The electrical apparatus, appliances and other parts manufacturing industry, as per the findings of the Annual Survey of Industries in 1973-74 and 1975-77 periods, comprised 185 registered factories in 1973-74 and 129 in 1975-77 in Bombay. The factories provided employment to 7,675 persons including 6,148 workers in 1973-74 which declined to 4,630 persons including 3,372 workers in 1975-77. The decline in employment appears to be commensurate with the decline in number of factories. The structure of capital of the units in Bombay was as under. The figures reveal annual averages in the respective survey periods:—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	3,33.14	4,06.75
Working capital	6,84.56	3,72.16
Capital investment	11,09.32	11,32.24
Outstanding loans	8,00.00	8,43.55

It can be deduced that in spite of the fall in number of factories and employment, there was no decline in fixed capital, capital investment or outstanding loans, though there was a considerable fall in working capital. It is certain that there was progress in the industry in Bombay during the period under study.

The industry in Bombay worked for 1,253,433 man-days per annum during the period 1975-77. There was a considerable decline in total emoluments, namely from Rs. 3,09.48 lakhs including wages paid to workers (Rs. 2,03.80 lakhs) in 1973-74 to Rs. 2,66.53 lakhs including wages paid to workers (Rs. 1,42.79 lakhs) per annum during 1975-77. This decline could not be due to fall in wages but due to fall in employment.

The fuel consumption by the electrical apparatus and appliances industry in Bombay was valued at Rs. 30.91 lakhs in 1973-74 and at Rs. 39.11 lakhs per annum in 1975-77. They utilised raw material worth Rs. 18,14.10 lakhs and Rs. 17,73.89 lakhs, respectively in the years under study. The other miscellaneous inputs of the factories were worth Rs. 3,02.36 lakhs per year in 1975-77. The total cost of inputs was Rs. 20,47.59

lakhs in 1973-74 which increased to Rs. 21,15.36 lakhs in 1975-77. The increase in costs may be attributed to the rise in prices. The fall in the value of plant and machinery from Rs. 4,07.40 lakhs to Rs. 3,89.01 lakhs over the years under reference is inexplicable. The volume of production of the Bombay factories is analysed below. The figures represent annual averages during the two survey periods:—

(Rs. in lakhs)

Item	1973-74	1975-77
Products	25,33.24	25,33.98
Other output	N.A.	86.42
Total output	25,84.80	26,20.40
Depreciation	48.74	47.60
Value added on manufacture ..	4,88.46	4,57.23
Factory payments	N.A.	1,35.71
Net income	N.A.	3,21.52

The above statistics bring home the conclusion that there was a decline in the output and value added on manufacture in the industry in Bombay. The fall in production was however less than proportionate with the fall in number of factories and employment. It can therefore be deduced that the marginal units must have wounded up and that consumer resistance to products might have reduced demand and production in the Bombay industry, during the limited period under consideration. It may however be borne in mind that the period under review is too short to deduce any far-reaching conclusions, and that the industry has actually prospered in the post-Independence period.

As regards the structure of the industry in Bombay, it can be surmised that it is more of a capital intensive industry rather than a labour intensive one. The industry consumes less fuel than many other industries such as cotton textile and some sectors of metal and machinery industries. The ratio of total output to total inputs shows the profitability in the industry. The value added on manufacture compared very favourably with the fixed capital.

ELECTRIC FANS

The electrical industry in India commenced with the manufacture of fans. It was in 1924 that electric fans manufacturing was commenced in the country by a private limited company in Calcutta. The fans were sold at competitive prices and became popular among the elite class within a short period. The success of this concern provided an impetus to many others. By 1939, about half a dozen firms undertook manufacture of

electric fans in the country.[1] The progress of the industry has been phenomenal and new records of production were set up in 1959-60.

The history of the industry in Bombay dates to the year 1937 during which the Crompton Parkinson Limited was established. The lead given by this concern was followed by a number of units which were set up in this city.

The industry received considerable encouragement during the Second World War when there was a sharp decline in imports. The industry sought for tariff protection from the Government in 1949. In 1951, the Indian Tariff Board, having regard to the comparative figures of the landed costs of imported fans and the fair selling prices of the indigenous products and also keeping in view the restrictions on imports, recommended that there was no case for protection to the industry.

In 1950-51, there were 22 units in the organised sector in the country which had a capacity to produce about 288 thousand fans per annum. By the end of 1960-61 the number of units increased to 24 with an installed capacity to manufacture about 871,750 fans per annum on a single shift basis. Of these six were in Maharashtra.[2]

With revolutionary changes in the methods of production and assembly, it has been possible to achieve distinct economies in costs of production and to make available the products at even lower prices in the face of increasing costs of raw material and wages.

The principal manufacturers of electrical fans in Bombay are Crompton Greaves Ltd., Rallis India Ltd., Almonard Pvt. Ltd. and G.E.C. Ltd., Besides, two other companies have their registered offices in Bombay, the plants of which are located elsewhere. The Crompton Greaves, with four units in Bombay, two being at Worli and two at Kanjur Marg (Bhandup) is by far the oldest concern in Bombay. The Crompton, a leader in electrical engineering and technology since 1900, were the first in India to make high power-factor capacitor fans. It manufactures almost everything in electricals. Some of the finest and the best equipped material testing, quality control, research and development facilities in the country are with the Crompton Greaves in Bombay. A few landmarks in the development of this enterprise may not out of place. Established at Chelmsford in England about hundred and ten years ago, the Crompton Parkinson Ltd., constructed a plant at Worli in Bombay in 1937 to manufacture a wide range of electrical equipment. It was integrated with Messrs. Greaves to form Greaves Cotton and Crompton Parkinson on April 27, 1937. There was financial participation of Crompton Parkinson in Greaves Cotton in 1947 with a view to accelerating the expansion

[1] *Handbook of Commercial Information*, 1963.
[2] Ibid.

of its Worli plant. The two companies finally merged in 1966 to form Crompton Greaves Ltd., bringing together all the diverse functions under one management.[1] The sales turnover of the company was valued at Rs. 70.09 crores in 1978-79 and Rs. 88.74 crores in 1979-80.[2]

The Rallis India established in 1957 is another large-scale manufacturer of electric fans of all kinds. It has a factory at Mulund in Bombay, and has an installed capacity to manufacture 3.50 lakh fans per annum. Its production of fans in a latest year amounted to 2.38 lakh fans.[3] The Almonard with a factory on Saki-Vihar road and the G.E.C. with a factory at Goregaon (Aarey Road) also manufacture fans in Bombay.

Almost all types of fans are manufactured by these firms like ceiling fans, table and pedestal fans, industrial fans and high pressure blowers and exhaust fans. The products are exported from India to 38 countries in the world, and the industry is an important foreign exchange earner, accounting for as much as 10 per cent of the total exports of engineering goods from India in 1963.[4] Within the country, the demand for electric fans is rising very rapidly on account of progress of electrification even in remote areas and improvement in the level of living of the people.

Fans which were not within reach of the lower middle class families about 25 years ago have penetrated them of late. Consequently the demand for table fans and ceiling fans has soared very high.

Almost all the raw materials required for electric fan manufacturing are available indigenously.

ELECTRIC LAMPS

The expansion of industrialisation, rural electrification and the progressive rate of urbanisation have contributed to the growth of this industry in Bombay. Rising income and standard of living are also responsible for an increase in demand for the appliances like electric lamps, fluorescent tubes, etc. during the last about 30 years. Since 1952, there was a fifteen-fold increase in the output of fluorescent lamps, while the output of electric bulbs has trebled.[5]

The first electric lamp manufacturing factory was established in Calcutta in 1932. Two other companies manufacturing lamps were also incorporated in the same year in Calcutta. Just before the Second World War two factories were set up in Bombay,[6] and they were the pioneers of the industry in the city. During the War the existing factories expanded

[1] IEMA, op. cit., 1974.
[2] *A State-wise Picture of Large Scale Industrial Activity*, 1981.
[3] Ibid.
[4] *Handbook of Commercial Information*, 1963.
[5] *Kothari's Investor's Encyclopaedia.*
[6] *Handbook of Commercial Information*, 1963.

their installed capacity, while new ones came into being. By 1950, there were eleven factories in India including the two in Bombay, and they had a total annual rated capacity to produce 26 million lamps. The manufacture of fluorescent tubes was undertaken for the first time in India in 1952. The industry went through various phases of growth during the post-planning era.

The industry was partly dependent upon imports of components in the initial stages of its growth. About 40 per cent of the requirements of raw materials and components were imported in 1961-62.[1] During the Third Plan certain chemicals, soda, lime, glass tubing, glass shells, caps, solder wires and tungsten filament were manufactured indigenously.

The imports were chiefly from Great Britain, West Germany, the Netherlands and Japan. Automobile bulbs were imported from Japan and Czechoslovakia and studio lamps from Britain, the Netherlands, West Germany, Japan and the U.S.A. Gas filled lamps and incandescent lamps were imported mainly from the above-mentioned western countries.[2] Gradually the local production was not only increased but was also diversified to cover almost all products with the result that the imports are now restricted to categories of projector lamps, scaled beam lamps and miners cap bulbs.

The Crompton Greaves Ltd., with a world-wide reputation for manufacturing some of the finest electrical equipments, has four manufacturing units in Bombay, two at Worli and two at Kanjur Marg (Bhandup). These units together manufacture lamps, fluorescent tubes, fans and a wide range of electrical products. Besides, there are many other manufacturers in Bombay most of which are of recent origin. There are many feeder ancillary industries in Bombay which manufacture brass caps, glass tubes and rods.

DOMESTIC ELECTRICAL APPLIANCES

The common domestic electrical appliances comprise electric iron, kettle, water heater, radiator, stove, toaster, coffee percolator, oven, hot plate, cooker and incubator. The components of such appliances consist of a metallic body or frame, heating elements of resistance wire and insulating materials. This industry is of very recent origin, and is mainly confined to the small-scale sector. The initial growth of the industry was mainly in the form of assembly of parts, which in subsequent years developed into a manufacturing and assembling industry. It developed after the commencement of the First Five-Year Plan when imports of luxury articles were curtailed. In 1957–58 there was one

[1] *Handbook of Commercial Information*, 1963.
[2] Ibid.

large-scale factory in this industry in Bombay, while there were many small-scale units.

A mention may be made of some of the manufacturers in Bombay:—

Devidayal Stainless Steel, Reay Road; Killick Nixon; Standard Electrical Products, Jogeshwari (West); Industrial Controls and Appliances, Andheri (East); Homa Industry, Andheri-Kurla road; Anchor Industries, Malad; Ketco Geysers, Tardeo, etc.

The industry has grown mainly under consumer patronage and ban on imported articles. Its growth is traceable from the mid-fifties of this century. The products of this industry have penetrated the houses of even the middle class and lower middle class of Bombay, though the costlier electrical gadgets are well beyond their reach as yet.

The principal raw materials required by this industry comprise resistance wires and strips, ceramic bases and wire holders, insulators, metal castings and sheet metal pressings, etc. A number of small components are also required. All these are locally available, and an ancillary sector of the industry has grown along with the main industry in Bombay. Resistance wires are generally imported though most of the other items are procured from indigenous sources. A number of articles produced in Bombay are exported to South East Asian countries. Japan and China are however the formidable rivals of the Bombay products in foreign markets.

OTHER ELECTRICAL EQUIPMENT

Manufacturing of other electrical equipment including electric switches, sockets, holders, adopters, insulators, etc. is undertaken in Bombay mainly by small-scale units and proprietary concerns. Information for these units is not available.

ELECTRONICS INDUSTRY

The electronics industry in India as well as in Bombay is increasingly playing an important role in national development. This industry nucleated during the early 1950's with the manufacture of radio receivers by a few firms. The National Radio and Electronics Company Limited established in Bombay in 1940 is one of the pioneers in the manufacture of entertainment and consumer electronic products and a variety of industrial and professional electronic products. The other pioneers in the electronics industry in Bombay were the Advani-Oerlikon established in 1951 and the Cosmic Radio established in 1952. The Motwane Private Limited was however the earliest concern in Bombay established in 1909. Since the early 1950's the industry in Bombay has not only grown in total volume, but also has diversified enormously. In fact, there is hardly any major sector of the economy in which electronics do not find some

use. The trend has been towards growth of professional electronics and self-reliance in many of the high technology sophisticated fields.

The importance of the industry can be judged from the following facts. More than 80 per cent of India's population is now covered by the mass communication media like radio and television. The defence preparedness of the country is now based on the indigenously manufactured radars and sophisticated systems. The process control instrumentation is being increasingly used for economic running of different processes and manufacturing industries like fertilizers, petrochemicals, etc. Indigenously manufactured computers are being used in some cases. Electronics plays an important role in the control of nuclear reactors and optimal distribution of power through the grids. The launching of the first Indian satellite stood testimony to the Indian ability to design and implement complex projects involving myriad of electronic systems.[1]

The production of electronics and components increased tremendously during the last about 15 to 20 years. The industry has gained a firm ground in Bombay. Besides meeting the total demand, there is a substantial export of electronics items. The industry has diversified into areas like radio frequency cables, microwave components, digital instruments, control equipments, etc.

The electronics industry mainly comprises the manufacture of consumer electronics like radio sets, television sets, tape recorders, record players and public address systems; telecommunication equipment; computers and data processing equipment; control and industrial electronics which are meant for optimisation of operational cost, quality and efficiency in production in various industries; medical electronic equipment; instruments and components and materials. The establishment of the Television Centre in Bombay in 1972 gave new dimensions to this industry. A number of units have been incorporated to manufacture T.V. sets which have found inroads into thousands of houses in the city.

As mentioned earlier the Motwane Private Limited established in 1909 was the earliest concern to manufacture public address amplifiers and special sound systems in Bombay. It is however, remarkable that the Forbes Forbes Campbell and Company Limited is by far the oldest concern in Bombay established as early as 1767[2] which later on entered electronics and engineering industries in Bombay. The concern is running two factories in Bombay, *viz.*, at Chandivli Estate and Kurla, besides two others elsewhere. It manufactures wire and microwave communications, sound and vision broadcasting equipment, airfield equipment, instruments, electronic components and raw material. The

[1] *Times of India Directory and Yearbook*, 1980-81.

[2] It was established in 1767 a as trading concern under the name Forbes and Company.

Larsen and Toubro Limited established in Bombay in 1938 has a factory at Powai which manufactures plant and equipment for nuclear power generation, electrical switchgear and electronic controls, and a wide range of sophisticated machines for various industries. Its sales turnover was valued at Rs. 74.49 crores in 1979-80. The activities of the National Radio and Electronics Co. (1940) are already mentioned earlier. The installed production capacity of its factory at Andheri is as under':—

Item	Numbers ('000)
Radio speakers	258
Radio receivers	200
Voltage stabilisers	15
Electronic office machines	15

The turnover of its sales was computed at Rs. 10.82 crores in 1979-80. The Advani Oerlikon Limited established in 1951 in Bombay has a factory at Bhandup. It is a leading manufacturer of electronic control equipment, welding electrodes, welding rectifiers, motor generators, power and distribution transformers, power control equipment, electrostatic photo-copying equipment and a number of sophisticated machine tools. It has started two research and development wings, one in Bombay and another in Pune. Its sales turnover was worth Rs. 13.48 crores in 1977-78. The Siemens India Limited established in 1957 in Bombay, has a factory at Worli and another at Andheri, besides two units elsewhere. It manufactures railway signalling relays, switchboards, electric motors, electro-medical equipment, instrumentation equipment, switchgears and many other items. The installed capacity of all the units of the Siemens is given below[1]:—

Product	Thousand Nos.
Switchgears	1,921
Electric motors/generators	15
X-Ray equipment	0.750
Coupling filters	70
Switch boards	15.20

The turnover of sales were computed at Rs. 72.73 crores in 1978-79 and Rs. 95.80 crores in 1979-80. The Killick Nixon incorporated in 1947 has a factory at Chandivli which produces electronic goods and other machinery.[2]

There are a number of other concerns in Bombay which are engaged in the manufacture of electronic goods.

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.
[2] *Bombay Chamber of Commerce Directory*, 1976.

The electronics industry is a highly capital intensive industry. The employment potential of the industry is limited as most of the functions are carried out by sophisticated machinery. It is also a highly technologically advanced industry requiring the services of technocrats and trained electronic engineers. The industry in Bombay as in India is awaiting a bright future.

The industry found a congenial home in Bombay mainly on account of the infrastructure facilities and the availability of electronic engineers. The demand for the electronic items also provided a tremendous stimulus to this industry. For example, tape recorders, cassette players, stereo amplifiers and stereo players are highly in demand from the well-to-do as well as the higher middle class with the result that manufacturers were encouraged to produce them. A recent addition to the sound and light electronics is the video player which is making inroads into hundreds of households. The demand for electronic calculators is almost multiplying.

Electronic sound technology has advanced tremendously during the last about ten to fifteen years. The establishment of the Television Centre in Bombay in 1972 gave a great fillip to the industry in this city. The demand for T.V. sets and parts thereof has been progressively increasing. The demand for stereo players, amplifiers, tape recorders, cassette tapes, video players and a wide range of sound electronics has increased tremendously. The industry, therefore, received a stimulus during the last about 10 to 15 years in Bombay.

The Cosmic Radio Limited with a factory at Andheri was incorporated in Bombay in 1952. It manufactures stereo amplifiers and loudspeakers, stereo cassette tape decks, tape recorders, record players and stereo headphones. The Polestar Electronics Private Ltd. which has a factory at Kandivli manufactures television receivers, amplifiers and a range of sound electronic goods. It has expansion plans to manufacture micro processors and microwave ovens. It has plants at Delhi and Chandigarh as well.

As per the classification adopted in the Annual Survey of Industries, several electronic goods are classified in a single group. It includes the manufacture of radio and television transmitting and receiving sets including transistor radio sets, sound reproducing and recording equipment including tape recorders, public address system, gramophone records and pre-recorded magnetic tapes, wires and wireless sets, telephone and telegraph equipment, signalling and detection equipment and apparatus, radar equipment and installations, parts and supplies specially used for electronic apparatus.

As per the Annual Survey of Industries there were 39 registered factories in this group of industry in Bombay in 1973-74 which fell in number to 35 in 1975-77. The factories provided employment to 6,051 employees

including 4,444 workers in 1973-74 which declined to 4,842 employees inclusive of 3,365 workers in 1975-77. The structure of capital of the factories was as under. The figures reveal annual averages for the survey periods.

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	4,66.25	4,58.52
Working capital	5,00.93	4,63.50
Capital investment	11,59.19	14,28.85
Outstanding loans	8,71.02	10,20.27

It is evident that there was an increase in capital investment in the industry in spite of a fall in fixed capital, working capital, number of factories and employment.

The factories worked for 13,85,178 man-days per annum in 1975-77 period. The total emoluments paid to employees amounted to Rs. 2,62.73 lakhs inclusive of wages to workers amounting to Rs. 1,58.95 lakhs in 1973-74 which increased to Rs. 3,24.51 lakhs and Rs. 1,92.50 lakhs respectively in 1975-77. This increase could be attributed to rise in wages, bonus and other monetary benefits to the employees.

By the very nature of this industry the fuel consumption forms a smaller proportion of the costs of production. It amounted to Rs. 13.05 lakhs in 1973-74 and Rs. 20.76 lakhs in 1975-77. The value of raw materials consumed by the factories was Rs. 10,16.36 lakhs in 1973-74 and Rs. 9,80.73 lakhs in 1975-77. The value of other inputs was Rs. 3,27.69 lakhs in 1975-77. The total inputs of the Bombay factories were computed at Rs. 1,05.00 lakhs and Rs. 13,29.18 lakhs, respectively in 1973-74 and 1975-77. The value of plant and machinery was computed at Rs. 2,92.12 lakhs in 1973-74 and Rs. 2,37.90 lakhs in 1975-77.

The structure of production by the firms in Bombay was as under. The figures are annual averages :

(Rs. in lakhs)

Item	1973-74	1975-77
Products	14,16.22	15,99.82
Other output	N.A.	1,99.10
Total output	15,18.50	17,98.93
Depreciation	27.78	35.93
Value added on manufacture ..	4,40.71	4,43.81

The factory payments of the units were worked out at Rs. 145.84 lakhs while the net income at Rs. 2,87.98 lakhs per annum in the 1975-77 survey period.

The above statistics lead us to some conclusions. Though there was a decline in the number of factories, employment, and raw material consumption, the total output showed a conspicuous increase. It is a highly capital intensive industry with low employment opportunity. The value of products and value added on manufacture also registered a rise over 1973-74. The value added on manufacture is quite high as against the fixed capital and working capital of the industry. The ratio of total output to total inputs is high and is suggestive of the profitability of the industry. The net income of the companies in 1975-77 shows the high returns on capital in the industry. The high rates of dividend distributed by most of the concerns in Bombay also bear testimony to the high rate of returns ranging upto 30 per cent in some efficiently managed companies in Bombay.

RADIO RECEIVERS

Manufacture of radio receivers is largely a post-Independence phenomenon. The expansion of radio broadcasting service in the country during the last few decades helped growth of the industry. The Electrical Machinery and Equipment Panel on the development of electrical industries in its Report (April 1947) had observed that adequate consideration was not being given to the production of radio receivers in the country at that time.

According to the *Wealth of India* by the Council of Scientific and Industrial Research, the assembling of receiving sets from imported components was started in the third decade of this century after the incorporation of medium wave broadcasting transmitters in Bombay and Calcutta in 1927. As per the *Wealth of India* a Bombay firm which was set up in 1940, subsequently entered into technical collaboration with a London firm, not only to assemble receiving sets but also to manufacture several components.

Production of a few components like wooden cabinets, metal parts, knobs, transformers, chokes, coils, resistors, pilot lamps had already been taken up on a limited scale. The components and raw material which were required to be imported were valves, insulating materials, condensers, loudspeakers, enamelled copper and live wires and other precision parts.

It is now an important industry as the demand for radio sets and transistors is growing very fast. Like many other avenues of production Bombay has provided a congenial home to this sector also. Besides the units in the organised sector, there are several small-scale and cottage industry units engaged in this line of production in Bombay.

STORAGE AND DRY CELL BATTERIES

The growth of demand for cars and trucks and the increasing operations of railways and telephones provided an impetus to the industry producing

storage and dry cell batteries. In fact many services and industries are now increasingly using storage batteries. Naturally this industry grew rapidly since the Second World War. It is a matter of gratification that the industry has fully justified the protection granted to it by the Government.

The first dry cell battery making factory in India was established in 1926 by an English firm near Calcutta. Another firm came into the field in 1936 in Maharashtra. At the beginning of the Second World War, these were the only two companies in India manufacturing about 18 million dry cell batteries annually. During the war 80 per cent of the production was reserved for use by the defence services. The industry was granted tariff protection in 1947 which was continued upto 1954. In 1950-51, three units out of four in the country were in Maharashtra.*

Storage batteries differ from dry cells as they depend for their operation on the reversible reaction of electric current with which they are charged. A storage cell consists of two dissimilar electrodes immersed in an electrolyte. The two types of commercial batteries are lead acid cells and alkaline cells. Storage batteries are very useful for many services.

The first attempt to manufacture storage batteries was made by a firm in Calcutta in 1931. The increased demand during the Second World War encouraged an increase in production to 1.22 lakh storage batteries per annum in India. The tariff protection granted to the industry in 1948 was continued upto the end of 1955. The industry manufactures various types of batteries for motor vehicles, automobiles, electric driven equipment, marine engines, aircrafts, tractors, tanks, etc. There are special batteries for railways, telephones, telegraphs, power stations, fork lift trucks, etc. Till the mid-fifties they were imported from foreign countries. Great advancements have now been made in this industry in recent years.

The Standard Batteries Ltd., Bombay, in collaboration with a Swedish concern has made immense progress in this field, and it possesses equipment and machinery to produce batteries of a high standard. It has two factories in Bombay *viz.*, at Santacruz and Bhandup. The installed capacity of this concern and production in a latest year are given below†:—

Item	Installed capacity (No.)	Production (No.)	Sales in 1979-80 (Rs. in crores)
Lead acid storage batteries ..	7,05,800	3,97,335	18·64
Cap lamps without batteries ..	60,000	16,545	
Battery operated trucks ..	120	84	

* *Handbook of Commercial Information*, 1963.

† *A State-wise Picture of Large Scale Industrial Activity*, 1981.

The Estrela Batteries, founded in Bombay in 1939 has a factory at Dharavi. It was primarily formed to manufacture electric batteries, dry cells and other electrical goods. The company has all the necessary machinery, a mechanical engineering department and a well-equipped laboratory. It also manufactures battery for flash lights, radio-sets, automobile vehicles, special instruments and signalling equipment. It has an installed capacity to produce 130 million dry cells and batteries, of which it actually produced 46.60 millions in a latest year. The sales turnover of the concern was Rs. 6.10 crores in 1978-79 and Rs. 5·53 crores in 1979-80.

The Union Carbide of Bombay is a renowned manufacturer of dry cells for transistor sets and torches. It is also a manufacturer of auto lamps.

Besides the large-scale manufacturers, there are many small units in Bombay which manufacture, assemble, repair and rebuild storage batteries. The small-scale sector recorded a substantial progress during and after the Second Five-Year Plan.

The storage and dry battery cells industry in Bombay is a foreign exchange earner, and it caters to the needs of defence services and public services, such as, telegraphs, telephones, railways and telecommunications. Though most of the raw materials required for the industry are now available indigenously, the industry has to depend upon imports of sulphur and synthetic resins. Progressively sulphur is also being obtained from the petroleum refineries in Bombay which produce it as a bye-product. The Indian Standards Institute has formulated standard specifications for lead acid storage batteries for aircrafts and motor cycles as well as heavy duty and light duty lead acid storage batteries for motor vehicles, hard rubber containers for motor vehicle batteries and stationary cells and batteries.

As per the Annual Survey of Industries there were nine manufacturers of dry and wet batteries in Bombay in 1973-74 which provided employment to 3,739 employees. The fixed capital in the industry was Rs. 372.43 lakhs, working capital Rs. 112.33 lakhs and invested capital Rs. 818.07 lakhs in the same year. The total emoluments paid to workers were of the order of Rs. 3,09.48 lakhs.

The factories consumed raw materials worth Rs. 10,48.20 lakhs, the value of plant and machinery being Rs. 448.68 lakhs. The value of products of the industry was Rs. 15,84.88 lakhs. The total output and total inputs of the Bombay industry were computed at Rs. 15,59.46 lakhs and Rs. 11,51.97 lakhs, respectively. This shows the profitability in the industry, and the high returns on capital. The value added on manufacture was Rs. 3,48.82 lakhs in 1973-74.[1]

[1] Figures for 1975-77 are not available.

AIR-CONDITIONERS AND REFRIGERATORS

The manufacturing of air-conditioners and refrigerators which are deemed to be luxury items by Indian standards is of very recent origin. Its history in India is traceable to the period of the First Five Year Plan (1951-56). Initially the industry was limited to assembly of imported parts and components. At the end of the Second Plan there were 14 units in the organised sector in India, manufacturing domestic and commercial refrigerators, air-conditioners, and water coolers, of which five were located in Bombay. Besides, there were ten units manufacturing air-conditioners, of which three were in Bombay.[1] The industry found a congenial homein Bombay in addition to Calcutta and Delhi. The Government of India took interest in fostering the cause of this industry since 1960-61, when several licences for the manufacture of scale units and compressors were issued. In these days compressors and control units and modulating motors were imported for the refrigerators. Now, however, all components are manufactured indigenously, a small portion being produced by ancillary units. Black and galvanised steel sheets and light steel structurals are required by the industry which are available in the country.

The Godrej and Boyce Co. has a nation-wide name for refrigerators. The company with plants at Lalbaug in Central Bombay and at Vikhroli, is an integrated unit. Its sales turnover inclusive of refrigerators, furniture and other items was of the order of Rs. 107.64 crores in 1979-80. The Voltas Ltd. with a factory at Lalbaug and another factory at Thane is another reputed company with an installed capacity to manufacture 15,100, air-conditioners, 33,000 refrigerators and 2,400 water coolers per annum. The sales turnover of the two plants of the Voltas was valued at Rs. 178.74 crores in 1978-79 and Rs. 204.50 crores in 1979-80.[2] There are many other units in Bombay in this industry and activities allied to it. To mention a few: Hind Rectifiers, Bhandup; Jafkay Engineering Corporation, Marol; Khandelwal Herrmann Electronics, Bhandup; Larsen and Toubro, Powai; Premier Automobiles, Kurla, etc. The Larsen and Toubro is specialised in the manufacture of cold storage plants required for very large dairies and meat processing plants.

The refrigerators and air-conditioners manufactured by the Bombay industry are exported to many middle-east and south-eastern countries.

The Annual Survey of Industries statistics for the refrigerators and air-conditioners manufacturing industry are not separately available. The 1973-74 survey has grouped together manufacture of refrigerators, air-conditioners, fire-fighting equipment, and their parts, components and accessories. According to this grouping there were 29 factories in

[1] *Handbook of Commercial Information*, 1963.

[2] *A State-wise Picture of Large Scale Industrial Activity*, 1981.

Bombay which provided employment to 2,432 employees including workers in 1973-74. The fixed capital of the factories was Rs. 125.10 lakhs, working capital Rs. 206.67 lakhs, and invested capital Rs. 574.62 lakhs. The total emoluments paid by the firms in Bombay amounted to Rs. 153.40 lakhs including Rs. 90.56 lakhs paid as wages to workers.

The factories consumed fuel worth Rs. 8.11 lakhs and raw materials worth Rs. 302.22 lakhs. The value of plant and machinery was Rs. 62.37 lakhs. The products of the entire industry group were valued at Rs. 638.43 lakhs, the net value of semi-finished products being Rs. 90.25 lakhs. The total output of the Bombay industry was valued at Rs. 967.81 lakhs against the total inputs of Rs. 388.08 lakhs. The value added on manufacture was computed at Rs. 570.67 lakhs.

The above statistics show the high ratio of output to inputs, high profits and higher returns on capital. The share of wages in total emoluments is much less in this industry.

MACHINERY AND MACHINE TOOLS

Machinery and machine tools manufacturing is a broad sector of industry which comprises a wide range of manufacturing activity in Bombay. For purposes of analysis this sector, which can very broadly be termed as the engineering industry, is conceived to include the following principal segments of industries:—

(*i*) manufacture of prime movers, boilers and steam generating plants, such as diesel engines and parts,

(*ii*) industrial machinery for food and textile industries,

(*iii*) industrial machinery for other than food and textile industries, and

(*iv*) manufacture, alteration and repair of general items of non-electrical machinery, components, equipment and accessories not elsewhere classified.

This classification of the industry accords with the one adopted by the authorities of the Annual Survey of Industries for 1975-77. The 1973-74 Survey has furnished separate statistics for many more segments, and the same are utilised, wherever necessary, in the account of the respective segments.

Before proceeding to the account of the various segments of this industry, it is deemed useful to give an analytical account of the machinery and machine tools industry, highlighting its principal characteristics, and the place of the Bombay industry in that of Maharashtra. This analysis is based on the Annual Survey of Industries in 1975-77. The figures reveal annual averages for the survey period.

The machinery and machine tools industry in Bombay comprised 630 registered factories which formed 59.38 per cent of the same industry

in Maharashtra in 1975-77 period. They provided employment to 39,491 persons which constituted 39.20 per cent of the employment in the State. The invested capital in Bombay factories was of the order of Rs. 1,12,84 lakhs or 32.63 per cent of the invested capital in Maharashtra factories. The output in Bombay was computed at Rs. 2,33,23 lakhs which was 38.64 per cent of that in the State. The value added on manufacture in Bombay was computed at Rs. 61,54 lakhs or 33.86 per cent of the industry in Maharashtra.

The above analysis leads to the conclusion that the machinery and machine tools industry in Bombay constitutes a smaller part of the industry in Maharashtra as compared to the other major industries, such as cotton textile; rubber, plastic and petroleum; metal products; chemicals and electrical machinery. This is attributable to the development of new factories in the Thane-Belapur and Pune industrial areas.

A detailed analysis of the industry as per the Annual Survey of 1973-74 and 1975-77 is given below, the figures revealing annual averages in the respective survey periods. There were 638 registered factories in 1973-74 as against 630 in 1975-77 in Bombay. They provided employment to 36,501 persons and 34,491 persons in the respective years. The structure of capital of the factories can be studied from the following statistics:—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital ..	30,37.65	37,11.95
Working capital ..	25,48.89	40,10.68
Capital invested ..	92,26.25	1,12,83.99
Outstanding loans ..	45,04.38	56,31.34

The above statistics reveal the growth of the factories in Bombay

The value of plant and machinery was Rs. 33,09.07 lakhs in 1973-74 and Rs. 43,98.64 lakhs in 1975-77. The structure of output of the factories in Bombay can be studied from the statistics given below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Products	1,36,00.46	1,84,41.20
Other output	N.A.	48,81.63
Total output	1,48,04.77	2,33,22.83
Depreciation	3,79.46	4,47.41
Value added on manufacture ..	41,95.48	61,53.94

There was, thus, an increase in output of the industry during the period under review. The factory payments of the units in Bombay were computed at Rs. 9,93.45 lakhs and the net income at Rs. 51,60.48 lakhs in 1975-77.

The conclusion imminent is that the ratio of output to inputs shows the satisfactory condition and profitability of the industry in Bombay. The proportion of value added on manufacture to total inputs and investment also shows the high productivity of the industry. The value added was about 54 per cent of the invested capital in 1975-77. The net income of the factories was about 45 per cent of the invested capital. This shows the high returns on capital investment in the industry in Bombay.

Within the limitations of data constraints, an attempt is made below to give an account of the industry in Bombay at the micro-economic level. The account of some of the well-known machinery manufacturers, on the basis of available information, is given below.[1] It may however be stated that the information for many units is not available.

Bombay is an important centre of the machine tools industry, and there are about 21 big companies engaged in this industry in the city. The large-scale manufacturers in Bombay include, Godrej and Boyce Manufacturing Company, Ralliwolf, Larsen and Toubro, Kramps Hydraulic (India), Vickers Sperry of India, Indian Tools Manufacturing Limited, Investa Machine Tools and Engineering Company, Garlic Engineering, Siemens India Limited, Advani Oerlikon, Voltas Limited, Consolidated Pneumatic Tools Company, Schra-Scovill Duncan Limited, Greaves Cotton, Electro Pneumatics, Dee-Key Industries, Bharat Tool Manufacturing Company, Horstanann India Private Limited, Star Diamond Tools, etc.

The Godrej and Boyce, established in 1897, has factories at Vikhroli and Lalbaug. It is one of the old concerns in Bombay engaged in the

[1] Based on *Bombay Chamber of Commerce Directory* 1976 and *A State-wise Picture of Large Scale Industrial Activity*, 1981.

manufacture of machines tools, locks, safes, steel furniture, steel cupboards, refrigerators, typewriters, steel tubings, fork lift trucks and a wide range of producers goods as well as consumers goods. It has pioneered in the manufacture of almost all the products mentioned above. It is one of the leading companies in India, and is a reputed manufacturer of machinery and machine tools. The total sales of this company were computed at Rs. 86.42 crores in 1978-79 and Rs. 107.64 crores in 1979-80. The Forbes Forbes Campbell and Company, incorporated in 1934, manufactures thread cutting tools-taps, dies, rotary cutters, high speed air tools, spark plugs, auto turned components. flexible shaft equipment, special tools, jigs and fixtures. It also manufactures a number of electronic components. It has two factories in Bombay *viz.* at Chandivli and Kurla, besides others at Aurangabad and Hyderabad.[1] The turnover of its sales was Rs. 11.39 crores in 1979-80. The Forbes and Company was established as the earliest English trading firm in 1767.

The Greaves Cotton and Company is another very old company of Bombay established in 1859. It manufactures diamond drills, operating equipments and high pressure water circulating pumps, surface drills, industrial diamond tools, steel valves, strainers, filters, float switches and alarm contactors. The sales of the company including the Nasik unit were worth Rs. 72.92 crores in 1979-80. The Turner Hoare and Company, established in 1895, has a factory at Signal Hill Avenue in Bombay which manufactures automobile clutch assemblies, super centrifuges, mineral oil purifiers, vegetable oil refining plants, generating sets, hydro pneumatic material handling equipments, mechanical cleaning rakes for thermal power stations, and many other items under collaboration with two U.S.A. firms. The Empire Industries is another very old company established in 1900. It has two factories in Bombay, at Vikhroli manufacturing industrial equipment and vitrum glass, and at Lower Parel engaged in textile processing, besides, a large unit at Ambarnath.

The establishment of the Larsen and Toubro limited in 1938 was an important addition to the Bombay industry. With a huge factory at Powai* and another at Madh Island, it manufactures a wide range of machinery which includes : earthmoving and agricultural equipment, hydraulic excavators and material handling equipment, drilling and mining machines; plant and equipment for dairy, meat processing and cold storage, breweries, pneumatic grain dischargers; machinery for sugar, fertilizer, chemical, pharmaceutical, petrochemical industries; plant and equipment for nuclear power generation and for cement, paper and pulp, iron and steel industries, electrical switchgears and other electrical equipment,

[1] *Bombay Chamber of Commerce Directory*, 1976.

* It has plants at Bangalore, Faridabad and Kansebahal also.

electronic controls; petrol pumps, valves, instruments, aluminium capsules; packaging machinery; tyre curing presses and low temperature welding alloys. The sales turnover of the company was Rs. 74.49 crores in 1979-80.

The Ralliwolf Limited with a factory at Mulund produces electric tools, and a wide range of products as under:—

Product	Installed capacity (Nos.)	Sales turnover in 1979-80 (Rs. in crores)
Portable electric tools ..	60,000	4.93
Valve refacers	1,200	
Stands	4,500	
Special purpose motors ..	12,200	

The Macneill and Magor Limited, incorporated in 1949, manufactures chemical equipment, electrical switchgears, mining equipment, valves, textile coats, industrial diamond tools, pumps, fork lift trucks, etc. Besides, two units in Bombay, it has plants at Calcutta, Madras and Ghaziabad. The Rallis India manufactures petrol engines besides many electrical goods, pharmaceuticals, pesticides, canned foods, etc., at Bombay. It was established in 1948.[1] The Westerwork Engineers Limited, established in 1961, has a plant at Bhandup Village which manufactures industrial furnaces for steel plants and rolling mills, heat treatment furnaces, ovens, lime kilns, oil burning systems, boilers, heat exchangers and pressure vessels, pneumatic foundry moulding machines and material handling equipment.

The Vickers Sperry of India Limited which has a factory at Kandivli (East) was established in 1965. It manufactures high pressure oil hydraulic equipment such as pumps, control valves, cylinders, accessories and components thereof. It has an installed capacity to manufacture 60,000 numbers of the items, the sales turnover being Rs. 5.53 crores in 1979-80.

The Consolidated Pneumatic Tools, with factories at Mulund and Nasik, was incorporated in 1957. It manufactures air compressors, a wide range of pneumatic tools for applications in industry, mining and construction work. The sales of the company were worth Rs. 10 crores in 1979-80. The Communication and Power Equipment Company has a factory at Lalbaug, which was established in 1942. It manufactures mechanical power transmission equipment and industrial drives of a wide variety.

[1] It has 4 works in Bombay.

The Indian Tool Manufacturers Ltd., with a factory at Sion and two others at Nashik and Aurangabad is a manufacturer of many kinds of machine tools as under :—

Product	Installed capacity per annum (No. in '000)	Sales (1979-80) (Rs. in crores)
Reamers	185.6	
Drills	7200	
Tool bits	300	
Gear hobs	6	11.08
Taps	580	
Cutters	138	
Micro metres	12	

The Machinery Manufacturing Corporation, established in Bombay in 1946, manufactures machinery required for textile, sugar, jute, paper and cement industries, and also for heavy industries like oil, mining, chemicals and other related industries. The Maneklal Manufacturing Company founded in Bombay in 1941 is a reputed manufacturer of textile machinery, as also industrial and consumers rubber, bakelite, leather, celluloid and plastic products. It has a factory at Saki Naka near Kurla.

The Advani Oerlikon Limited, established in 1951, is another reputed large manufacturer of machinery, electrical machinery and electronics in Bombay. It has factories at Bhandup, Kalina, Haybander, besides the units at Pune, Madras, Raipur and Visakhapatnam. The company manufactures a wide range of electronics and machinery. It is almost a pioneer in welding technology. It has research and development laboratories at Bombay and Pune. Since 1951, welding was the main field of this company. But recently it entered in new fields like electronics, control systems, photocopying, power control, and power distribution machinery. The company manufactured about 103.70 million pieces of various articles in a latest year.[1]

The Industrial and Agricultural Engineering Company has plants at Bhandup and Ahmadnagar for the production of boilers, industrial oil filters, water treatment plants, feed water heaters and other machinery. The value of sales of the concern was Rs. 6.96 crores in 1979-80. The Killick Nixon with a factory at Chandivli was established in 1948. It manufactures engineers' files, concrete prestressing equipment, vibrators, mixers, jacks, pumps and furnaces. Its sales were worth Rs. 9.73 crores

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.

in 1979-80. The New Standard Engineering Company with a plant at Goregaon manufactures drilling and threading machinery and blow room machinery. Its sales were to the tune of Rs. 10.52 crores in 1979-80.[1]

The WMI Cranes Ltd., with a plant at Bhandup and another at Bangalore is a large producer of cranes.

There are many other concerns in this industry the information for which is not available. The latter half of the 19th century witnessed the growth of some English companies, while the industry received a real impetus during the Second World War. Many of the companies have foreign collaboration with reputed firms in the West.

The industry received a growth stimulus in the Second World War. The establishment of peace however, created conditions of slump in demand and foreign competition. The hardships were mitigated by Government by granting tariff protection from time to time. Further development of the industry was ensured by ban on imports of machinery. The industry derived immense benefits from Government protection against foreign competition. All-round growth of consumers and producers goods industries in the post-planning period accentuated the demand for machinery. This resulted into development of the industry during the last about 30 years.

The account of the various segments of the industry is given in the following pages. There is however a formidable difficulty in presentation of a statistical analysis of the various segments due to the grouping adopted in the Annual Survey of Industries. The particular method of grouping renders it difficult to present the statistical data for each segment.

MACHINE TOOL INDUSTRY

The Machine tool industry is an important one and its development is very necessary if the engineering industry is to play its correct role, not only in building up the infrastructure of the economy, but also in providing sufficient consumer goods to meet the demands of an expanding economy. Machine tools are basic machines which are used for making other machines. Hence the development of this industry is a pre-requisite for the growth of industrialisation. The history of growth of this industry can be traced to the Second World War prior to which the country used to import most of its requirements of machine tools. During the War it was felt necessary to manufacture machine tools in the country itself so as to meet the increasing demand. The requirements of new growing industries during the Second World War and the scarcity of supplies on account of curtailment of imports acted as a stimulus to the machine tool industry in Bombay as in India. The Machine Tool Control Order was

[1]Ibid.

passed in 1941 by the Government of India in order to ensure quality production of machine tools. The Government appointed a Machine Tool Controller primarily to secure supplies of the best quality of machine tools for the war industries. The Government of India also encouraged the development of this industry by placing orders with Indian firms and by inviting technical experts from the U.K. to guide the Indian firms, which resulted in an increase in indigenous production from Rs. 6 lakhs in 1942 to Rs. 1.12 crores in 1945. The real impetus to the development of the industry was however revived only after 1947. The Government of India after Independence helped the industry in tackling various problems relating to supply of raw materials, tariff protection, import regulations, Government purchases of machine tools, allocation of large quota of pig iron, steel and coal to the machine tool industry on priority basis, etc. In 1961-62, the Government annouced the inclusion of this industry among the priority industries for the grant of foreign exchange and for channelising foreign exchange assistance.

The position of the Indian industry as a whole improved with the incorporation of the Hindustan Machine Tools in the public sector in 1955. The decade after 1951 witnessed a considerable advance. During period of the Second Five Year Plan, large composite units in the private sector expanded. Foreign collaboration, both as regards capital and technical know-how, made rapid progress during the Second Plan Period. The industry registered a dynamic growth in the sixties. In the seventies it consolidated its achievements of the sixties and showed an increased rate of production. In 1979, machine tools valued at Rs. 154.4 crores were produced in the country.[1] The share of Bombay in this was quite high.

Bombay is one of the important centres of this industry and there are about 21 big companies manufacturing machine tools in this city. The machine tool factories provided employment to 2,371 persons in Bombay in 1973-74. The large-scale manufacturers in Bombay include companies of countrywide reputation, such as Godrej and Boyce Mfg. Co., Ralli-wolf, Kramps Hydraulik (India), Vickers Sperry of India, Indian Tool Manufacturing Limited, Investa Machine Tools and Engineering Co. Limited, Garlic Engineering, Siemens India Limited, Advani Oerlikon, Voltas Limited, Batliboi and Company Limited, Consolidated Pneumatic Tools Company, Schra-Scovill Duncan Limited, Greaves Cotton and Co., Electro Pneumatics, Dee-key Industries, Bharat Tool Mfg. Company Private Limited, Horstanann India Private Limited, Star Diamond Tools, etc.

Besides, there are several large-scale and small-scale units manufacturing graded and ungraded varieties of machine tools, metal working and wood working machine tools along with agricultural implements.

[1] *Engineering World*, February 1982.

The Godrej and Boyce Mfg. Co., established in 1897, the Indian Tool Mfg. Limited, established in 1937, the Investa Machine Tools and Engineering Co. Limited., established in 1942 and the Larsen and Toubro Limited, incorporated in 1946 are some of the pioneering concerns in Bombay. The Larsen and Toubro with a plant at Powai was established in 1938 as a partnership firm, was incorporated as a private limited company in 1946 and was converted into a public limited company in 1950. It manufactures food producing and processing machinery, general engineering plants, dairy and refrigeration machinery, machinery for bottling industry, agricultural machinery, and a wide range of machinery and equipment. The machine tool factories in Bombay manufacture a variety of machine tools including electric power presses, guillotine snears, geared press brakers, grinders, pneumatic industrial tools, pillar drills, hacksaw machines, power hammers, power presses, plate bending and plate straightening machines, shotblasting machines, welding machines, slitting and decoiling machines, scrap processing machines, electric tools, drills, sander, saws, blowers, carbide cutting tools, furnaces, foundry equipment, die sets, pumps and valves, tapping machines, diamond dressing tools, polishing and buffing machines, sheet metal working machinery, capstan lathes, wire nail making machines, flash butt welding machines, magnetic chucks, impact presses and a number of other tools. Production of machine tools encompasses a wide range of production processes like casting, welding, forging and machining in all of which metallurgical considerations are very important. The devices employed in machine tools are electrical, hydraulic and pneumatic. The controlling functions in a machine tool are done by electrical, electronic, oil, hydraulic, pneumatic, fluidic and numerical control devices, as also by mini computers.

As per the Annual Survey of Industries[1] in 1973-74, there were 35 machine tool manufacturing factories in Bombay which provided employment to 2,371, persons, 1758 of them being workers. The fixed capital of these factories was Rs. 135.40 lakhs, whlle the working capital was Rs. 179.25 lakhs. Their total invested capital stood at Rs. 433.87 lakhs and outstanding loans at Rs.230.25 lakhs in the year under reference. Machine tools is a capital intensive industry requiring a higher degree of rationalisation and modernisation. Consequently the ratio of capital to employment is very high. The total emoluments to employees in the concerns was to the tune of Rs. 163.95 lakhs which included payment of wages to workers, namely, Rs. 85.16 lakhs. The share of wages to workers in the total emoluments paid by the concerns shows that there is a preponderance of technocrats and managerial class of employees in this industry over the workers proper. The factories, as per the survey, consumed material worth Rs. 423.78 lakhs. The cost of fuel consumption

[1] The Annual Survey of Industries, Statistics for 1975-77 are not available.

was Rs. 12.01 lakhs, while the value of plant and machinery was computed at Rs. 136.99 lakhs. The total value of inputs was computed at Rs. 501.88 lakhs, while the value of output was Rs. 798.95 lakhs. The ratio of output to inputs was thus quite satisfactory. The value of products of the industry was to the tune of Rs. 753.05 lakhs, while semi-finished products were worth Rs. 199.51 lakhs. The value added on manufacture was of the order of Rs. 280.62 lakhs.

These statistics bring home the fact that the machine tools industry is a capital intensive industry, the share of labour in output being comparatively small. The ratio of value added to total inputs is also quite high.

The products of the machine tool industry are very diverse. There are over twenty major groups of machines, each divided into a number of sub-groups, types, sub-types and sizes. The products are marketed mainly to the engineering industries, railway workshops, ordnance depots and many other sectors of industry. The main raw materials required are pig iron, alloy and special steels, coke etc. which are acquired from indigenous sources. Formerly machine tools were imported from the U.K., U.S.A., East Germany, Czechoslovakia, U.S.S.R. and Japan. Now they are exported in large quantities. The share in exports of the Bombay factories is quite sizeable.

The machine tool industry faces many problems, such as, the quality of raw materials, the availability of accessories, and procedural matters and regulations which hamper growth. Most of the machine tool factories are well laid out, and have good equipment and buildings. They have good standards rooms with basic measuring equipment, the larger units having extremely well-equipped standards rooms.

Castings are reported to be of good quality and other raw materials are generally satisfactory. The quality of specialised materials such as steels, is however variable which presents problems of maintaining quality. The basic manufacturing processes and techniques are good, though a little old-fashioned. Many specialised parts and most precision components are imported. Most of the machines are of foreign design. Some of the machine tool factories are found to develop design ability and to train designers who may eventually be able to help the industry to become less dependent upon foreign collaboration.

After cessation of the war the industry suffered from foreign competition, and applied for tariff protection in 1946. The recommendations of the Tariff Board were accepted by the Government of India in July 1957. The protection granted was in the nature of restriction of imports. The Tariff Board felt that one of the methods to promote the development of the industry was to increase the rate of tariff duty on the

type of machine tools manufactured in the country, and to restrict the import of machine tools to meet only the pressing demand after taking into consideration indigenous production. Since it was felt that an increase in the import duty would inflate capital costs, the Government accepted the recommendation to restrict imports of such types of machine tools as were manufactured in the country. In fact the import of these machine tools was even completely banned.

It is observed that by Western standards productivity in the Indian machine tool industry is low, which is partly attributable to nature of the labour force and partly to dependence upon manual operations. The industry faces problems as regards the availability of certain accessories and prototypes. The Government have however allowed the import of prototypes for export-adoptation for the export market as well as for improvement in the existing models of machine tools. Many of the machines manufactured are of Western origin, while some of them are patently unsuited to the Indian pattern of use.

Many of the machine tool manufacturers appear to sell and service their products through agents, even in the home market. Machine tools are also exported from Bombay to the U.K., Europe, U.S.A., Sri Lanka, Middle East, South East Asia and Africa. The lower cost of the machine tools in Bombay as compared to that in European countries and the U.S.A. attracts foreign buyers. The Indian machine tool industry made a modest beginning in the export of machine tools in 1956-57, and the F.O.B. value of exports was Rs. 87,000 in 1956-57; Rs. 15.76 lakhs in 1961-62; Rs. 66.13 lakhs in 1966-67; Rs. 3,04.36 lakhs in 1971-72; and Rs. 2,12.60 lakhs in 1972-73.

The Indian Machine Tool Manufacturers' Association established in September 1946, claims to have played an important role in the development of this industry in Bombay as in India. It tackles various problems of the industry, particularly with regard to the supply of raw materials, tariff protection, import regulations, Government purchases of machine tools, demand surveys, rationalisation in production, etc. It sponsored a number of delegations to the international machine fairs from time to time and developed contacts with the manufacturers and users of machine tools abroad so as to facilitate an interchange of ideas and information and to promote export of machine tools. The Central Machine Tool Institute is established with the objective of helping the industry to develop on the right lines and in the right direction. It is planning to help the industry in the development of new designs, new technology and of training the personnel for better design and production.

The Indian Machine Tools Exhibitions (IMTEX) held from time to time are of immense value for fostering the growth of the Industry. The

fifth All India Machine Tools Exhibition held at Vikhroli in Bombay in early 1982 was said to be the largest specialised exhibition of its kind ever held in India. More than 400 Indian manufacturers and about 125 overseas companies from 13 countries displayed their products in this exhibition which satisfied the highest international standards. Many foreign delegations from industrially advanced countries visited this exhibition. IMTEX-1982 reflected India's technological achievements in the machine tool industry, and Bombay was the proper venue for it.

COTTON TEXTILE MACHINERY

The cotton textile industry is the oldest and largest organised industry not only in Bombay but also in India. Mechanisation of cotton textile production in the country started in 1854 when the first mechanised textile mill was started in Bombay. The industry developed very rapidly during the last two decades of the 19th century and the first 45 years of the present century. The expansion, modernisation and periodic replacement of machinery by the cotton textile mills naturally increased the demand for machinery by cotton textile mills. The principal items of textile machinery in use in the early stages of the cotton textile industry were as under:—

(1) spinning machinery, blow room machinery, carding engines, drawing frames, blubbing frames, intermediate frames, roving frames and spinning ring frames, (2) weaving machinery like winding machines, warping machines and looms, and (3) processing and finishing machinery like jiggers, mercerising machines and calendering machines.

The machinery for the cotton mills in Bombay continued to be imported from England until about 1900, after which some continental countries including Germany, Switzerland, Holland and France exported machinery to Bombay. While the Lancashire machinery makers could secure fairly good business by direct correspondence with the Bombay millowners, they realised the advantages of having a local firm of influence and standing to represent their interests among Indian buyers of cotton textile machinery. This system continued quite for long. It was during the Second World War that it became difficult to procure machinery from abroad, and that a beginning was made in the manufacture of textile machinery indigenously. In the post-war period, several manufacturers took up large-scale production of various items like spinning ring frames.

The Acme Manufacturing Co. Ltd., Bombay, was the first to manufacture cotton textile machinery in Bombay. The first cotton textile machinery manufacturing unit in India was however established in Calcutta. The Acme Manufacturing Co. with a factory at Wadala,

commenced production of ring frames in 1947-48. In 1948 the unit had a capacity to manufacture 72 ring frames per year. Another unit manufacturing cotton textile machinery, namely the Star Textile Engineering Works, was established in Bombay in 1948.[1]

With an emphasis on fuller utilisation of installed capacity of mills and on replacement and modernisation of obsolete machinery, the necessity of modern and improved machinery was keenly felt in the period of the First Five Year Plan. This paved a way for considerable progress in the manufacture of textile machinery during the First Plan. The National Machinery Manufacturers, Bombay, which was incorporated in 1947, went into production of complete ring frames in 1954.[2] This concern was an important addition to the machinery industry. It further undertook the production of spare spindles and spinning rings. Its production of drawing frames, speed frames and reeling machines commenced in 1954 in Bombay.

Besides the pioneering concerns mentioned above, there are several manufacturers of cotton textile machinery in Bombay. They produce almost all kinds of machinery and equipment of the latest designs and qualities. In addition to major items of cotton textile machinery manufactured by the principal manufacturers, almost all spare parts and components are fabricated by other engineering firms.

It may be noted that the industry suffered from foreign competition in its embryonic stage. The prices and quality of imported goods lent a favourable position to the imports. The indigenous industry therefore applied for tariff protection to the Government of India. Tariff protection was therefore granted by the Tariff Board for the first time in 1949 and then in 1950, 1954 and 1960,[3] during which years the rates of tariff were changed to suit the demands of the situation. Lately however the import of most of the cotton textile machinery has been banned, and there is no question of granting any protection in the case of such items.

The principal raw materials required by the industry comprise pig iron, mild steel, free cutting steel, hard drawn bright steel flats and bars, tin plates and coke. Formerly these materials were imported, but now they are available indigenously with the exception of a few special items which are imported in small quantity.

Certain items of machinery like combers, testing machines and single spindle automatic pirn winding machines were imported from Britain, U.S.A., West Germany, Netherlands and Japan upto the end of the Second Five Year Plan. Most of them are however indigenously manufactured at present. The products of the industry are required mainly by

[1] *Handbook of Commercial Information*, 1963.
[2] Ibid.
[3] Ibid.

the indigenous cotton mill industry. Exports of some items during the last about 25 years, have increased considerably.

It may be useful to give an account of a few concerns in this industry in Bombay. As mentioned earlier the Acme Manufacturing Co. was the pioneer in this industry in Bombay. The Maneklal Manufacturing Ltd., established in Bombay in 1941, has a factory near Kurla which manufactures a wide range of textile machinery. The Machinery Manufacturing Corporation produces textile machinery, besides other kinds of machinery, for sugar, jute, paper and cement industries. It was established in 1946. The Central India Machinery Manufacturing with a plant at Jogeshwari produces shuttles, picking sticks and other equipment.

The Maharashtra State Textile Corporation, a public sector undertaking for maintaining 'sick mills', manufactures spindles, looms, automatic looms and other accessories at Bombay, Solapur, Kolhapur and Aurangabad. The enterprise has many development projects in hand. Besides the machinery manufacturers, some of the cotton textile mills in Bombay have started production of the entire range of textile machinery. A mention may be made of some of them : Kohinoor Mills, Morarjee Goculdas Mill (Bhandup), Phoenix Mill, Piramal Spinning and Weaving Co., Podar Silks and Synthetics, Raghuvanshi Mills (Mahalaxmi), Rubi Mills, Sitaram Mills (Chinchpokli) and Tata Mills (Dadar).

The authorities of the Annual Survey of Industries have grouped the textile machinery and food industry machinery together. Hence it is difficult to give a statistical analysis of either of them separately.

INDUSTRIAL MACHINERY

Capital goods like industrial machinery constitute a vital sector of the national economy. Industrial machinery was imported entirely from the western countries upto the beginning of the Second World War. Manufacture of industrial machinery began in the country during the war, when supplies from abroad were curtailed. Subsequently, the growing demand for machinery and plant arising from industrial growth coupled with the policy of self-sufficiency provided a stimulus to the progress of indigenous machine building industry. A beginning in this respect was made, towards manufacture of cotton textile machinery, and machinery for industries like sugar, tea, flour mills, vegetable oils, etc. This was followed by manufacture of machinery for chemical plants, solvent extraction plants, paper mills and cement factories.

A plant in Bombay manufactures complete cement plant machinery with foreign collaboration. There was no unit in the country producing complete cement plants at the beginning of the Second Five-Year Plan.[1]

[1] *Handbook of Commercial Information*, 1963.

The Larsen and Toubro and the Machinery Manufacturing Corporation (1946) are the producers of cement plants in Bombay.

The account of a few machinery manufacturers has already been given earlier.

TYPEWRITERS INDUSTRY

The growth of industries, expansion of trade and commerce and Government activity necessitated the quick disposal of the increasing volume of business and official correspondence. The growing correspondence and writing activity further accentuated the need for a machine that could help to transcribe as quickly as possible. Several attempts were made in the western countries in the previous century to devise a writing machine. According to the *Encyclopaedia Britannica* the invention of Christopher Latham Sholes and two other residents of the United States of America resulted into the first practical machine for writing in 1867. Messrs. E. Remington and Sons, the pioneers in this line of industry, took up the development and commercial manufacture of that machine in 1873.

Within a few years after the introduction of this machine in the U.S.A., the first typewriter was imported into India in 1896. The first portable typewriter was imported into the country in 1921, while the first electric typewriter, which was then a novel device was imported in 1925.[1]

The first typewriter manufacturing industry in India is said to have been started in 1930 when assembly of the components of typewriters in the country commenced, and manufacture of some of the accessories was taken up. In spite of the intricacy involved in the manufacture of this machine the well-known steel fabricating firm of Godrej and Boyce in Bombay first undertook the job of manufacturing of the All India Typewriter. The credit was all the more greater because it was accomplished without asking for Government protection against imports. The birth of the Indian typewriter at a time when even established firms in the West were not in favour of manufacturing typewriters, stands testimony to the Indian ability to undertake such a high precision job. It is again remarkable to note that India was the first country in Asia to manufacture a typewriter.

It was after Independence that the industry providing for local fabrication of the majority of the components, setting up of the necessary tool rooms for ensuring precision of tools, and training of technical personnel came into being. The Government of India encouraged the indigenous industry by curtailing imports. A phased programme for the indigenous manufacture commenced in 1952.[2] Besides the Godrej and Boyce of Bombay, two other companies, *viz.*, Remington Rand of India, Calcutta

[1] *Handbook of Commercial Information*, 1963.
[2] Ibid.

and Rayala Corporation of Madras were granted licences for typewriter manufacturing. The fourth concern in this industry started production in the sixties. The Government of India banned the import of typewriters since July 1957 totally. Certain accessories for which Indian prototypes are not available are allowed to be imported. The machine requires alloy steel and ferrous and non-ferrous material, of which special alloy steel is required to be imported.

The installed capacity of the Godrej Company was to manufacture 12,000 English typewriters per annum in 1960, the indigenous contents of each machine being 95 per cent. The Company has increased its capacity since then. It also manufactures vernacular typewriters in Marathi and Hindi languages. The company has modern machinery and technical know-how necessary for this industry.

SEWING MACHINES

Sewing machine is a product of light engineering industry. This industry is about 45 years old in India. The first unit in the large-scale sector commenced production in 1937.[1] This unit was required to switch over to the production of certain munition items in 1939 as per directives of the Government of India. Its production of sewing machines during the Second World War was confined to meet the requirements of the Government. All of its products were diverted to meet the requirements of war. After the cessation of war, it was reorganised for production on a large scale. The industry was granted protection initially in 1947 which was withdrawn in 1955.[2]

Calcutta is the original home of the sewing machines industry in India. During the period of the First Plan there were only two organised units in Calcutta engaged in the manufacture of domestic sewing machines. Production of industrial sewing machines was started for the first time in the country in May 1952 at Calcutta. The industry grew very rapidly during the Second Five-Year Plan, the output of machines being nearly 2.5 lakhs in 1959 against the target of 2.20 lakhs during the Second Plan period. The progress of the industry from the fifties to the seventies continued to be impressive.

Almost all the components and parts required in the manufacture of sewing machines are being fabricated within the country. Except for some raw material of specific quality, all the material is now indigenously available.

The sewing machines industry in Bombay is mainly in the small-scale sector. The small-scale units assemble components or manufacture parts and spare parts. Some of them sell machines under their own trade

[1] Ibid.
[2] Ibid.

names. A large proportion of the parts used by the large-scale units are manufactured by small-scale units. Of the 106 parts in a machine, about 94 are manufactured by small units. Even needles which were entirely imported upto the fifties are now indigenously manufactured.

Formerly sewing machines were imported from Western countries, the U.S.A. being the principal supplier. Indian sewing machines have improved so much in quality that large exports are now made to America, South-East Asia, the Middle East and Africa. Exports to countries like the U.K., Canada, West Germany, Belgium, Sri Lanka and Afghanistan are by no means small. There is a huge demand for sewing machines in the country, particularly in the urban and semi-urban areas. The increase in demand is attributable to growing urbanization, increase in incomes and diversification in fashions in clothing and garments.

DIESEL ENGINES

The diesel oil engine, which is an internal combustion engine, is named after Dr. Rudolf Diesel, a German inventor of the engine. Diesel engines like petrol engines belong to the prime mover group of machinery. A diesel engine obtains ignition from the heat generated by compression, while the petrol engine is a spark ignition engine. There are two broad categories of diesel engines, *viz.* horizontal slow speed type and vertical high speed type.

The first factory to manufacture diesel engine in India was established at Satara in 1932. The industry was developed by the Kirloskars in Pune in the late forties and early fifties. In the post-war period there was no restriction on imports, and diesel engines of foreign make were freely available in the country. This had an adverse impact on the indigenous growth of the industry. The liberal import policy, continued upto 1952, made it imperative on the part of the Indian Diesel Engine Manufacturers Association to persuade the Government to restrict imports. The Government agreed to grant protection to the industry in subsequent years.

At the end of the Second Five Year-Plan there were nine units in Maharashtra. Production of diesel engines prior to 1956 was linked exclusively to agricultural uses. They are used in agriculture for operating centrifugal pumps for irrigation. The uses of these engines are now diversified to various industries, flour milling, rice milling, electricity generation and processing industries. Besides the stationary diesel engines, mobile engines are used on an extensive scale in the automobile vehicles. With the sharp increase in the output of diesel trucks and cars, there was a rapid growth of the diesel engine producing industry.

The Premier Automobiles, Bombay, obtained its requirements of diesel engines from the Automobile Products of India, Bombay. With an increase in demand for road rollers, trailers, tractors and automobiles, the industry has grown considerably during the last about

25 years. The types and sizes of stationary diesel engines produced are singular cylinder horizontal engines, single cylinder vertical engines, and multi-cylinder vertical engines. Engines of higher power are now required for use in road rollers, air compressors, stone crushers and similar machinery.

A micro-level information about the industry in Bombay is not available.

The principal raw materials required for this industry are pig iron, Martin's acid steel, alloy steel, white metal, etc. which are available indigenously. While imports of diesel engines are prohibited, the stationary diesel engines are exported to Bahrein Islands, Burmah, Sri Lanka, Cambodia, Iran, Iraq, Phillippines, Thailand, and many countries in the middle east and south-east Asian countries.* The Victoria Jubilee Technical Institute in Bombay has its own heat treatment unit and testing department which helps the industry in quality control and various aspects.

The Automobile Products of India with a factory at Bhandup produces automotive diesel engines. The Lakshmiratan Engineering Works established in 1946 manufactures diesel engines and textile machinery in Bombay.

TRACTORS AND EARTHMOVING MACHINERY

Tractors and earthmoving machinery industry is of recent growth in Bombay. The International Tractor Company of India, which is a subsidiary of the Mahindra and Mahindra was established at Kandivli in 1963 in collaboration with a U.S.A. firm from Chicago. It commenced production of agricultural tractors in 1966. It exported about 1,000 tractors and 600 agricultural implements between 1966 and 1976 to Turkey, Zambia, Kenya, Tanzania, Uganda, Somalia, Muscat, Indonesia and Nepal. The Larsen and Toubro is a large manufacturer of earthmoving and agricultural equipment. It was established in 1938. The Tractor Engineers Limited, established in 1952, has a factory at Powai which produces track and under-carriage parts for crawler tractors and also parts for agricultural and earthmoving machinery in collaboration with an international concern in the U.S.A.[1]

ROAD ROLLERS

Road rollers were manufactured in the country during the Second World War, but thereafter there was a break. The industry was originated in West Bengal. A firm in Bombay was licensed to manufacture road roller chassis for use with an agricultural tractor of 4.5 tons capacity. The firm went into production in 1956.[2]

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* *Handbook of Commercial Information*, 1963.

[1] *Bombay Chamber of Commerce Directory*, 1976.

[2] *Handbook of Commercial Information*, 1963.

POWER DRIVEN PUMPS

Power driven pumps are used generally for pumping liquids by centrifugal force. The first attempt to manufacture power driven pumps in India was made in 1925, but the industry did not make much progress till the Second World War. The post-war impetus to agricultural production, however, enabled the industry to develop rapidly. Development of irrigation and lift irrigation under the various development plans gave a further impetus to pump manufacturing.

The raw materials required by the industry comprise ferrous materials including pig iron for base plate and pump body and mild steel for shafts and keys, and non-ferrous materials such as gun metal for impellers and bushings. Centrifugal pumps are exported to middle east countries.

TRANSPORT EQUIPMENT

Transport equipment manufacturing has emerged as an important sector of industry in Bombay. This sector which can broadly be categorised as a part of the engineering industry underwent a process of accelerated growth ever since the development of automobile and ship building and repairing industries in Bombay. The transport equipment industry is conceived to comprise various sub-sectors manufacturing motor vehicles, motor cycles, scooters, ship building and repairing, locomotives, railway wagons, coaches, and other rail-road equipment, bicycles, cycle-rickshaws, air-craft components, bullock-carts, push carts, hand carts and other types of transport equipment and parts thereof. This classification accords with that adopted by the authorities of the Annual Survey of Industries.

The structure of the transport equipment industry in Bombay is analysed below on the basis of the statistics compiled under the Annual Survey of Industries in the period 1975-77. The figures represent annual averages for the survey period. This industry in Bombay comprised 223 registered factories which constituted 66.17 per cent of the factories in the industry in Maharashtra. They provided employment to 33,754 persons who formed 58.38 per cent of the employment in the State. The invested capital in the transport equipment factories in Bombay was computed at Rs. 87,53 lakhs or 29.90 per cent of that in the Maharashtra industry. The output of the Bombay factories, computed at Rs. 1,74,93 lakhs, constituted 52.72 per cent of output in Maharashtra. The value added on manufacture by the industry in Bombay was of the order of Rs. 49,84 lakhs or 54.49 per cent of the total industry in the State.

The above analysis brings home the fact that the percentages, in respect of invested capital, output, value added and employment in the Bombay factories to the factories in Maharashtra were not commensurate

with the percentage of number of factories in this city. It can therefore be deduced that the factories, or at least a section among them, in Bombay may be comparatively smaller in size. The more plausible deduction however can be that the miscellaneous sub-sectors of the Bombay industry may be consisting of smaller units. This might be more so because the principal or large units manufacturing automobile vehicles, ship building and railway rolling stock are located in Bombay.

The detailed statistics about the transport equipment industry in Bombay as per the A.S.I. of 1973-74 and 1975-77 are analysed below. The figures are annual averages of the years under the Survey.

TABLE No. 12

MANUFACTURE OF TRANSPORT EQUIPMENT AND PARTS IN BOMBAY

(Rs. in lakhs)

Item	1973-74	1975-77
No. of estimated factories ..	272	223
All workers	44,410	25,061
All employees	54,463	33,754
Man-days worked	N.A.	99,32,467
Fixed capital (Rs.)	38,31.23	32,04.95
Working capital (Rs.)	23,69.17	17,58.83
Capital investment (Rs.) ..	1,49,84.14	87,52.81
Outstanding loans (Rs.) ..	49,25.96	59,87.61
Wages to workers (Rs.) ..	25,64.74	19,65.35
Total emoluments (Rs.) ..	37,26.61	34,86.09
Fuel consumption (Rs.) ..	3,47.86	4,85.12
Material consumed (Rs.) ..	1,06,01.84	1,00,61.72
Other inputs (Rs.)	N.A.	16,15.46
Total inputs (Rs.)	1,19,63.19	1,21,62.30
Plant and machinery (Rs.) ..	61,05.04	51,74.14
Products	1,34,20.25	1,51,76.40
Other output	N.A.	23,16.77
Total output	1,78,57.30	1,74,93.17
Depreciation	3,95.81	3,46.83
Value added on manufacture ..	54,98.30	49,84.03
Factory payments	N.A.	9,55.04
Net income	N.A.	40,28.99

Some conclusions are imminent from these statistics. There was a general decline in the industry in Bombay over the period from 1973-74 to 1975-77. The recession was more conspicuous in respect of number of factories, employment and capital investment. The rise in outstanding loans during 1975-77 is also symptomatic of a recession. The rise in value of total inputs in 1975-77 might be due to other factors not covered in the statistics. Though the value of total output receded in 1975-77, the value of products showed a pronounced rise. It can also be observed that the value added on manufacture compared very favourably with the fixed capital and working capital. The figures of total output and total inputs read along with the value added show the profitability of the industry.

The automobile industry which comprises manufacture of motor vehicles, motor cycles and scooters is the most important segment of the industry, which is followed by ship building and repairing, railway rolling stock and bicycles and cycle-rickshaws. The historical account of development of the various sectors of the industry is given in what follows.

AUTOMOBILE INDUSTRY

The automobile industry is one of the most sophisticated and developed industries in India. It is regarded as the cardinal indicator and a pace setter for economic development in the country. It gives all-round boost to production of other industries. This industry provided direct employment to 57,000 persons in 1974-75. Besides, there is tremendous additional employment provided in the automobile ancillaries, allied industries and services. The importance of the industry to the Indian economy lies in its being, firstly, an important industry in itself, giving direct employment to a large number of workers and turning out finished products worth huge amounts; secondly, a parent industry utilizing the products of other industries; thirdly, a reserve arsenal of the nation, which can be geared to defence requirements during war; and fourthly, a provider of the most important means of modern transport. It has an immense potential of generating national income, and substantially increasing employment and national productivity. Moreover, it offers a bright scope for training and creation of a cadre of highly skilled technicians and technocrats for manning various industries.

The automobile industry accelerates the development of other industries as it requires the products of other industries such as steel and metal alloys; components such as pistons, piston rings, cylinder liners, gudgeon pins, gaskets, oil seals, valves, brake linings and clutch discs and wheels; and ancillary requirements such as sparking plugs, batteries, electric bulbs and wires, tyres and tubes, paints, and upholstering material. Besides, automobile vehicle users require petroleum products, servicing stations, repair workshops, spare parts, etc.

India is today one of the few automobile manufacturing countries in the world, and is the only one in continental Asia.

The first motor car was imported into India in 1898. Thirty years later a factory set up in Bombay by General Motors India Ltd. began to assemble cars and trucks for the first time with imported components. The General Motors India which was then a subsidiary of the General Motors of the U.S.A. was established in 1928, and is generally considered to be the pioneer of assembly operations in India, although another firm *viz.*, Mackenzie and Company claimed to have started assembling cars and trucks in Calcutta earlier than General Motors.[1] The Ford Motor Company of India commenced assembly of automobiles at Madras in 1930. Prior to the Second World War the combined production capacity of General Motors and Ford Motors was 96,000 units per annum. About two decades afterwards two Indian concerns in the private sector laid the foundations of the indigenous automobile industry by taking up simultaneously company knocked down assembly of motor vehicles and manufacture of vital automobile components, under technical collaboration arrangements with foreign manufacturers. The subsequent period witnessed the enormous growth of the industry and the establishment of several ancillary industries, agencies for distribution of cars, the setting up of repair and service shops, installation of assembly plants, and growth of the manufacture of body panels for commercial vehicles.

The history of the indigenous automobile industry in India can be traced to the year 1942 when a limited company was floated at Calcutta to manufacture vital parts of a motor vehicle such as the engine, gears, rear and front axle. The history of the automobile industry in Bombay however, begins from 1944 in which year the Premier Automobiles Ltd. was registered under the Indian Companies Act with an authorised capital of Rs. 10 crores which was subsequently raised to Rs. 25 crores. It went into production in 1947. This company was followed by two esteemed companies at Bombay, *viz.*, the Mahindra and Mahindra Limited, which was established in October 1945 and started production in 1949, and the Automobile Products of India Limited, established in 1949, which went into production in 1955. It is noteworthy that the automobile industry in India comprises eight approved vehicle manufacturers, such as (*i*) Premier Automobiles, Bombay; (*ii*) Mahindra and Mahindra, Bombay; (*iii*) Automobile Products of India, Bombay; (*iv*) Hindustan Motors, Calcutta; (*v*) Tata Locomotive and Engineering Company (registered Office at Bombay but factories at Pune and Jamshedpur); (*vi*) Ashok Leyland, Madras; (*vii*) Standard Motors Products, Madras, and (*viii*) Simpson and

[1] *Handbook of Commercial Information*, 1963.

Company, Madras. The annual assembling capacity of the six approved manufacturers of vehicles as in 1956-57 was as follows:—

Premier Automobiles	.. ..	18,000
Mahindra and Mahindra	.. ..	4,800
Hindustan Motors	.. ..	18,000
Standard Motor Products of India	.. ..	6,000
Tata Locomotive and Engineering Co.	..	7,500
Ashok Leyland	.. ..	1,500
		55,800

The Mahindra and Mahindra, Premier Automobiles, Automobile Products of India, Ramon Engineering Ltd., Hindustan Ferodo and Gabriel India are the principal automobile manufacturers in Bombay. They manufacture medium and light commercial vehicles, cars, jeeps, scooters, auto-rickshaws, tractors, forgings, gears, radiators etc. The statistics of production of automobile vehicles by the Mahindra and Mahindra, Premier Automobiles, Automobile Products of India and Ramon Engineering in four years are furnished below:—

Item		1976	1977	1978	1979
Passenger cars	.. ..	14,973	17,481	12,931	11,550
Jeeps	.. ..	6,847	9,584	11,010	12,340
Commercial vehicles	.. ..	3,551	2,834	2,618	4,163
Scooters	.. ..	32,986	21,610	26,722	26,338
Three Wheelers	.. ..	3,320	878	2,049	3,376
Mopeds	.. ..	25	487	945	2,225
Tractors	.. ..	6,348	1,932	7,007	9,405

There were 130 factories manufacturing motor vehicles, motor cycles, scooters and parts thereof, in Bombay in 1973-74 which increased to 145 in 1975-77. As per the Annual Survey of Industries, this industry provided employment to 20,917 employees of whom 15,898 were workers in 1973-74. The employment decreased to 19,088 including 13,695 workers in 1975-77. The industry worked for 55,89,858 man-days per annum during 1975-77. This is a capital-intensive industry and had a total capital investment amounting to Rs. 59,28,23,600, while the fixed capital and working capital were Rs. 21,34,47,100 and Rs. 13,21,05,000, respectively in 1973-74. The capital investment in the automobile industry in Bombay increased to Rs. 66,87,32,000 in 1975-77, while the fixed capital and working capital in the same period amounted to Rs. 24,40,22,000 and Rs. 13,16,31,000. The loans outstanding on the factories in 1973-74 amounted to Rs. 36,03,90,200 which increased to Rs. 44,32,11,000 in 1975-77. The 130 factories in 1973-74 paid Rs. 10,38,93,600 to workers by way of wages, while the total emoluments to all employees amounted to Rs. 17,25,00,700. The wages paid to workers by the 145 factories in

1975-77 increased to Rs. 11,04,16,000, while the total emoluments to all employees was to the tune of Rs. 20,23,76,000. This rise can very well be attributed to escalation of money wages over the period of comparison.

The factories are operated mainly on electricity and crude oil, the total consumption of which was valued at Rs. 2,25,10,600 in 1973-74. The value of fuel consumption increased to Rs. 3,56,50,000 in 1975-77. The raw materials utilised by them were worth Rs. 73,76,96,400 in 1973-74 and Rs. 78,91,04,000 in 1975-77. The value of plant and machinery in the industry was estimated at Rs. 26,99,00,100, while the value of total inputs was Rs. 82,34,16,900 in 1973-74. The value of total inputs of factories covered by the Annual Survey of Industries of 1975-77 was Rs. 94,72,05,000, the value of plant and machinery increasing to Rs. 34,10,32,000. The value of production in the automobile industry in Bombay as classified by the Annual Survey of Industries in 1973-74 and 1975-77 is given below:—

Item	1973-74	1975-77
	(Rs.)	(Rs.)
Products	1,12,65,08,800	1,20,09,63,000
Net value of semi-finished goods	1,14,88,200	9,25,72,000
Total output	1,15,13,16,300	1,29,35,35,000
Value added on manufacture ..	29,93,80,500	32,02,45,000

An amount of Rs. 2,85,18,900 was accounted for as depreciation in 1973-74 which decreased to Rs. 2,60,84,000 per annum in 1975-77. The net income of all the factories was computed at Rs. 24,89,06,000 per annum in 1975-77.

It will be of great interest to further study the automobile industry of Bombay at the micro-economic level. An attempt is made below to give an account of the large-scale units within the limitations of data constraints.

The Premier Automobiles Ltd. commenced production in 1947 with the assembly of about 3,000 vehicles per annum consisting of Desota, Dodge and Plymouth Cars and Dodge/Fargo Trucks under an agreement with a foreign concern, *viz.*, Chrysler Corporation of the U.S.A. The assembly of motor cars under this agreement was, however, suspended in 1956 in accordance with government policy in the matter. The company started production of Fiat cars in collaboration with an Italian company namely Fiat Societa Per Azioni in 1950. Besides these ventures, the company undertook manufacture of axle and components, diesel engines and shock absorbers under technical collaboration with some renowned firms in the U.S.A. and the U.K. Manufacture of components like propeller shaft and universal joint, exhaust pipe, radiators, and leaf springs was taken up in 1949.

All these technical collaboration agreements, however, have now expired and the Premier Automobiles Ltd. manufactures its products under its own trade name 'Premier'. Accordingly it now manufactures, (*i*) passenger cars, (*ii*) petrol commercial vehicles, (*iii*) diesel commercial vehicles, (*iv*) petrol industrial engines, (*iv*) diesel industrial engines, (*vi*) diesel marine engines, (*vi*) room air-conditioners and (*vii*) ERW steel tubes.

The Premier has its main assembly plant at Kurla, a mechanite castings foundry at Wadala in Bombay and a stamping plant at Dombivli in Thane district. It provided employment to 9,485 persons of which 7,476 were in the Kurla plant, 923 in the Wadala plant, and 1,086 in the Dombivli unit in 1972-73. The plant at Kurla provided employment to 9,140 persons of whom 6,089 were daily rated and 3,051 were monthly rated employees on 31st December 1976. During the year ending with June 1976 the company produced 14,520 vehicles. The production and sales of vehicles during 1974-75 and 1975-76 are given below*:—

Item	1974-75		1975-76	
	Production	Sales	Production	Sales
Cars ..	14,753	14,928	12,229	12,272
Drive-away chassis ..	169	162	40	34
Diesel trucks ..	3,784	3,516	2,151	2,245
Petrol trucks ..	177	284	100	97
Total ..	18,883	18,890	14,520	14,648

The quantum of production and the value of the products of the Company inclusive of vehicles and other articles in 1969-70 and 1972-73 is given below:—

	1969-70		1972-73	
	Quantity (No.)	Value (Rs. in lakhs)	Quantity (No.)	Value (Rs. in lakhs)
Cars ..	12,083	16,05.41	13,192	20,31.10
Drive away Chassis ..	....	....	1,202	1,91.14
Commercial Vehicles ..	3,957	12,61.35	3,519	13,54.53
Industrial Engines ..	231	21.04	406	41.42
M.S. Tubes	10,16,806 (Metres)	24.19	10,02,132 (Metres)	50.75
Air-conditioners ..	2,325	53.89	1,502	42.78
Factory made components ..	....	58.75	....	81.51
Total ..		30,24.63		37,93.23

*Annual Report 1975-76 (published), The Premier Automobiles Limited.

The company exported goods worth Rs. 22.71 lakhs in 1975-76 as against Rs. 30.70 lakhs in 1974-75. The products are mainly exported to various countries in Gulf area, Mauritius, Bangla Desh, Sri Lanka etc. The reported total income was Rs. 51.70 crores as against the total expenditure of Rs. 51.53 crores during the year ending June 1976. Its capital investment stood at Rs. 1,030.40 lakhs (subject to arrears of depreciation amounting to Rs. 395.80 lakhs) as on June 30th, 1976.

The production of vehicles (No.) by the Premier in 1976 to 1979 is given below[1] :—

Type of Vehicle	Year			
	1976	1977	1978	1979
Passenger Cars	14,973	17,481	12,931	11,550
Commercial Vehicles	2,319	1,881	1,264	1,079

The value of turnover of the Premier in 1979-80 was reported as under:—

Item	Value	Item	Value
	(Million Rs.)		(Million Rs.)
Cars ..	425	Other items ..	38
Commercial Vehicles	103	Other income ..	23
		Total (Value Million Rs.) ..	589

The Mahindra and Mahindra Limited which was established in October 1945 and started production in 1949, is a pioneering concern manufacturing Jeeps. The assembly of Jeeps commenced in India on June 3, 1949 after a market for Jeeps was firmly established in the country. The components were imported from the U.S.A. in completely knocked down condition, while ascessories such as tyres, tubes, batteries and a few other items were procured locally. The indigenous content of the built-up Jeep was increased progressively during the subsequent period. It was in 1955 that the company commenced a phased manufacturing programme in technical collaboration with a U.S.A. company *viz.*, Willys Overland Export Corporation, and their successors Kaiser Jeep Corporation. In

[1] *Automan India*, 1981, Association of Indian Automobile Manufacturers (Published).

conformity with the target envisaged in the Second Five-Year Plan, the Government of India sanctioned, in August 1958, an increase in the company's licensed manufacturing capacity to 5,500 Jeeps per annum. A further licence was granted to the company in 1961 for increasing its capacity to 10,000 jeeps per annum, by 1965-66. The present licensed capacity is for 25,000 jeeps inclusive of 5,000 forward control trucks and 5,000 utility vans.

The company started production at its plant at Mazagaon which was expanded and developed subsequently by shifting to the spacious factory at Kandivli. In order to achieve economy in production the Automotive Division of the company was divided into six units, *viz.*, (*i*) Jeep Unit, (*ii*) Engine Unit, (*iii*) Foundry, (*iv*) Marketing, (*v*) Truck and Station Wagon Unit, and (*vi*) Research and Development Centre. The First three of these are situated at Kandivli, the fourth at Worli and the last two at Ghatkopar. It is also developing an assembly plant for utility vans and trucks at Nasik. In order to yield economy in fact and yet retain its multi-purpose utility, the design of the Jeep and Truck was developed and changed from time to time since 1966. The company at present manufactures jeeps, jeep-trucks, station wagons and industrial engines. The volume of production in some years is given below :—

Year (Nov. to Oct.)	Production (No.)	Year (Nov. to Oct.)	Production (No.)
1949-50 ..	289	1969-70 ..	10,168
1959-60 ..	6,482	1972-73 ..	14,216

The production of vehicles (No.) of this concern in 1976, 1977, 1978 and 1979 is given below[1]:—

Type of Vehicles	Year			
	1976	1977	1978	1979
Jeeps	6,847	9,594	11,010	12,340
Commercial vehicles ..	1,232	953	1,354	3,084
Tractors	6,348	1,932	7,077	9,405

[1] *Automan India*, 1981.

The value of turnover of the company during the year ending with October 1979 was as under: [1]

Item	Value (Million Rs.)	Item	Value (Million Rs.)
Jeeps ..	587	Other items ..	94
Commercial vehicles	156	Other income ..	154
Tractors ..	448		
	Total value (Million Rs.) ..		1,439

Besides meeting the indigenous demand for jeeps, the company exports the vehicles to Bangla Desh, Sri Lanka, Jordan, Nepal, New Zealand, Yugoslavia as also to U.N. Organisations like UNICEF and WHO.

It provided employment to 6483 workers as on October 30, 1973, while its capital investment stood at Rs. 19,78.35 lakhs on the same date. It reported its gross income as Rs. 49,70,74,380 and expenditure as Rs. 46,85,21,317 during 1972-73. It procures its raw materials from indigenous steel plants as also from Japan, U.K., West Germany, Australia etc. against global orders.

The International Tractor Company of India, an associate company of Mahindra and Mahindra manufactures diesel tractors suitable to Indian soil conditions. The regular production of tractors at the factory at Kandivli started in April 1966 with an indigenous content of 51 per cent, which was increased to 80 per cent. The company has an installed capacity to manufacture 10,000 tractors per annum.

The Automobile Products of India Limited which was established in 1949 and commenced production in 1955, is one of the pioneering manufacturers of scooters, Lambrettas and three wheelers in India. The Automobile Products of India Limited, Bombay, originally formed for the purpose of manufacturing automobiles gave up the project later and obtained permission to manufacture Lambretta motor scooters besides diesel engines and automobile components. It went into production in August, 1955 in collaboration with an Italian firm, acquiring an actual capacity of 6000 scooters upto the end of 1955.

[1] Ibid.

Now it has an installed capacity to manufacture 48,000 vehicles per annum. Besides scooters, it manufactures three-wheeler vehicles, Fly Wheel Magnetos for Scooters under collaboration with another Italian company. It has technical collaboration with two West German concerns as well. Besides the main plant at Bhandup in Bombay, it has factories at Aurangabad, Nagpur and Lucknow. It provides employment to about 3282 persons, of which about 1952 employees are in the Bhandup plant. It uses mainly indigenous raw materials, procured from suppliers of machines and plants, while some material is also imported.

In 1981, the Automobile Products of India[1] put 21,527 scooters and 5,868 three-wheelers on the road. The sale of its ancillaries division amounted to Rs. 9.3 crores. It achieved a total sales turnover of Rs. 27 crores in 1981. The value of products and exports of the Bhandup Plant in 1980 and 1981 is given below:—

(Rs. in lakhs)

Item	1980		1981	
	Products	Exports	Products	Exports
Scooters	1,147	1.08	1,112	0.83
Three-Wheelers	388	3.30	589	6.92
Spares	75	0.29	64	0.34
Total ..	1,610	4.67	1,765	8.09

The number of Scooters and three-wheelers produced by the Automobile Products of India is given below:—[2]

	1976	1977	1978	1979
Scooters	32,986	21,610	26,722	26,338
Three-Wheelers	3,320	878	2,049	3,376

Scooters are highly in demand all over the country. The demand in fact out-strips supply. The principal buyers for three-wheelers are autorickshaw operators and operators of delivery vans.

The Ramon Engineering Limited, the details for which are not available, is mainly engaged in the manufacture of moped vehicles. It manufactured 25 mopeds in 1976, 487 in 1977, 945 in 1978 and 2,225 in 1979.

[1] Information supplied by the company.

[2] *Automan India*, 1981.

The Gabriel India which was commissioned into production at Mulund in 1960 manufactures automobile accessories such as shock absorbers, engine bearings, etc. Its turnover amounted to Rs. 60 millions in the year ending May 1980, while it employed 470 persons in the same year.

The Hindustan Ferodo, a comparatively larger unit manufacturing brake linings, clutch facings and other auto parts, started production in 1949 at Ghatkopar. Its turnover during the year ending with December 1979 amounted to Rs. 185 millions of which goods worth about Rs. 5 millions were exported. It provided employment to about 2,188 persons in the same year.[1]

Besides, there are many other factories manufacturing automobile spare parts and accessories. Most of them are young industries established in the sixties and seventies of the century.

The automobile industry in Bombay as in India suffered from a demand recession in 1975-76 which slumped the sales and production of cars and commercial vehicles. The severe inflationary trends which prevailed in the preceding years had substantially put up the cost of cars. The situation was aggravated by increase in taxation. High price of petrol also seriously restricted the demand for vehicles. The anti-inflationary measures taken by Government checked a further rise in cost of manufacturing. However the entire situation was such that the demand for automobiles slumped considerably. As a result, cars and other vehicles for which there used to be a waiting list for several years, became available off-the-shelf Road transport business was also adversely affected due to the recession in the economy and competition from railways. This affected the demand for and production of commercial vehicles in 1975-76. The industry was therefore found to take stringent cost reduction measures in order to survive the crisis. Steps were also taken to utilise the available plant capacity by increasing the manufacture of components which were hitherto being purchased from outside. The recession in the automobile industry had an adverse impact on the ancillary industries as well. The recessionary trend was however reversed and there was revival of demand from March 1976. Almost all the companies were operating at full capacity from 1976. Some of the companies intensified research and development activities from 1976 in order to improve the quality of products, to design and develop new products to meet the market requirements and competition, and to achieve cost reduction. The designs of a few vehicles were also developed to meet export market requirements.

During the last about 4/5 years the automobile industry of Bombay has made rapid progress in the field of exports. The export performance

[1] *Automan India*, 1981.

of the principal manufacturers in Bombay can be judged from the following statistics :—

Manufacturer and Products	Commercial Vehicles (Rs. in thousands)		
	1977-78	1978-79	1979-80
Premier Automobiles—			
Trucks	368	1,177	519
Buses	5,155	3,345	2,162
Bus Chassis	605	871	....
Deemed Exports	718	125	1,806
Total ..	6,846	5,518	4,487
Mahindra and Mahindra—			
Jeep type trucks	890	1,160	390
Jeep trucks CKD	1,180	....	2,290
Deemed Exports	3,100	4,000	5,700
Total ..	5,170	5,160	8,380
Two and Three-Wheelers			
Automobile Products of India—			
Scooters CBU	7	65	140
3-Wheelers	407	130	401
Total ..	414	195	541
Passenger Cars			
Premier Automobiles—			
Cars	246	113	1,886
Deemed Exports	241	76	174
Total ..	487	189	2,060
Jeeps			
Mahindra and Mahindra—			
Jeeps CBU	2,040	6,230	5,620
Jeeps CKD	2,780	450	2,370
Deemed Exports	11,000	30,600	31,200
Total ..	15,820	37,280	39,190

Source.—Automan India, 1981.

The main problems of the automobile industry in Bombay as in India are the mounting cost of production, non-availability of suitable materials the high cost of maintaining a car and growing consumer resistance, The steep hike in the price of petrol since 1973 has given a severe jolt to the industry.

It is however felt that there are better prospects for the growth of the industry, particularly in view of the rapid growth of the economy and the prospective demand for cars, commercial vehicles, jeeps and buses. The realization of the prospective growth depends upon realization of the economies of large-scale production, rationalization and export incentives.

It will be interesting to furnish below[1] the statistics of production of automobile vehicles and other ancillary products in India :—

(APRIL-MARCH)

Type of Vehicles	Actual Production in			Development Council's Production Targets for	
	1974-75	1975-76	1976-77	1977-78	1978-79
Passenger Cars	31431	21777	36490	35000	40000
Jeeps	9628	7133	8365	9000	10000
Comml. Vehicles ..	40649	43764	46422	60000	66500
Scooters	88356	112550	156854	250000	300000
Moter-cycles	61222	70105	72462	88000	100000
Mopeds	31911	34265	34458	80000	100000
Three-Wheelers.. ..	12210	13278	20037	31000	40000
Tractors	31101	33267	33145	45000	52000
Automotive Ancillaries ..	210	252	265	380	500

Note.—Except the last item which is given in crores of rupees, all other figures are in numbers of vehicles.

It may be recalled that the Tariff Commission in 1953 had recommended that only those firms which had a manufacturing programme should be allowed to assemble vehicles in the country. The Government of India had accordingly recognised five manufacturers of vehicles in India, including the Premier, and the API of Bombay. The Government had also recognised the Mahindra and Mahindra of Bombay for the assembly of jeep type vehicles. The Tariff Commission in its 1956 Report had recommended *inter alia* that high priority should be given to the manufacture of commercial vehicles rather than to passenger cars, and that efforts should be made to meet the anticipated increase in the demand for diesel commercial vehicles. The commission had recommended tariff protection

[1] " Focus on Automobile Industry." An article by President of the Association of Indian Automobile Manufacturers, in the *Financial Express*, June 25, 1977.

to the industry for a period of ten years an enhancement of revenue duties on essential components. The recommendations were accepted with the exception that the method adopted was to convert the then existing revenue duties into protective levies.

The Government of India had set up in 1959 an Ad-hoc Committee under Mr. L. K. Jha which *inter alia* estimated the percentage of indigenous contents in the vehicles manufactured by various companies. Measures were taken up for increasing the indigenous contents of all vehicles with the goal of import substitution. According to the *Programmes of Industrial Development* (1961-66), the indigenous contents of the vehicles have been steadily rising since the Ad-hoc Committee Report in early 1960, and it visualised that the same will rise upto 90 per cent by the end of the Third Plan. They rose up further recently.

In 1962-63, the main export markets for Indian cars were Pakistan, Singapore, Cambodia and Saudi Arabia, and for chassis, bodies, frames and parts, Viet Nam and Sudan.[1]

AUTOMOBILE ANCILLARIES

An automobile factory is usually a composite unit where, in addition to the assembly of a complete vehicle, manufacture of some of the essential components and machinery of a few other components is also undertaken. They generally produce major components, and buy from the ancillary industries parts and accessaries worth more than half the ex-factory price of the complete vehicle. Normally the ancillary sector manufactures some engine, transmission and frame components like pistons, piston rings, fuel pumps and nozzles, radiators, valves, clutch assembly, brake assembly, shock absorbers and springs, and all other electrical components, rubber and asbestos parts, body fittings and a number of miscellaneous accessories.

When the automobile industry was first established in India, the ancillary industry was in an underdeveloped stage. There was, at that time, some production of a few rubber components, electrical equipments and body components. As per the report of the Tariff Commission of 1953, "only a nucleus" of the ancillary existed in India at that time.

The Premier Automobiles, Bombay, one of the principal manufacturers of automobiles, has been manufacturing radiators since 1949, mostly for its own consumption. The Teksons Pvt. Ltd., Bombay, came into the field in 1960. The Bharat Radiators Pvt. Ltd. commenced production of automobile radiators and components in 1959. It has its factory at Santacruz near Vidyanagari which employs about 166 workers. Its annual turnover is worth about Rs. 18 millions (1979-80).[2] The Fuel

[1] *Handbook of Commercial Information*, 1963.
[2] *Automan India*, 1981.

Injunction Ltd., Bombay, commenced production of nozzles in 1956, and of elements in 1957. The industry was confronted with foreign competition in its initial stages of growth. This made it imperative on the part of the Government of India to grant tariff protection upto the end of 1963.

Commercial production of clutch assemblies was commenced in Bombay by the Automobile Products of India in 1957 with an annual production capacity of 15,000 units. The Asbestos Magnesia and Friction Material Ltd., Bombay, with an annual production capacity of 1,08,000 numbers started manufacturing clutch facings or discs in 1956. This was the only unit in India producing clutch assemblies on a commercial scale till the end of the Second Five-Year Plan.[1]

Production of brake linings was commenced in 1956 by the Automobile Products of India and the Asbestos Magnesia and Friction Material Ltd. in Bombay. The total capacity of the two units was 3744 thousand feet of brake linings at that time. The Hindustan Ferodo manufactures brake linings and clutch facings on a large-scale in Bombay. It has its factory at Ghatkopar which commenced production in 1949. It employs about 2,188 employees and has a turnover worth about Rs. 18.5 crores per annum. Its products are exported to foreign countries. In the manufacture of hydraulic brake assembly, the Automobile Products of India was the only firm in India producing this essential item which commenced production in 1957.[2]

The Premier Automobiles, Bombay, took up production of leaf springs in 1949. This was the second firm in India to manufacture this item, the first unit being started at Kapurthala in 1948. The Metropolitan Springs Ltd. Bombay, which commenced production in 1952 was the second manufacturer of leaf springs in Bombay.

Shock absorbers constitute an important component in an automobile vehicle. The manufacturing of shock absorbers was undertaken in India by the Premier Automobiles, Bombay, and another firm in Madras in 1956, prior to which these parts were wholly imported.

The annual production capacity of these two units was 34,000 sets of hydraulic shock absorbers in 1956. Another unit was started in Bombay in 1959 for the manufacture of friction type shock absorbers. The Gabriel India Ltd. which commenced production of shock absorbers and engine bearings in Bombay in 1960 is now a renowned concern. It has its factory at Mulund which employs about 470 employees, and has an annual turnover of Rs. 60 millions approximately.[3]

Electrical equipment including sparking plugs for automobiles is being manufactured in Bombay since 1955. The Auto Accessories (India)

[1] *Handbook of Commercial Information*, 1963.
[2] Ibid.
[3] *Automan India*, 1981.

Pvt. Ltd. was the first enterprise in Bombay to start manufacture of sparking plugs in 1955. This concern was established in collaboration with a British firm. This was the second unit in India, the first factory being established in Bangalore in 1953. These two units were the only manufacturers of sparking plugs in India upto 1962. They had together an annual capacity to produce about 1.6 million sparking plugs in 1962.[1]

The automobile ancillary industry which is now an established industry in Bombay, had to suffer the pangs of foreign competition during the initial stages of development. Realising the needs of the situation the Government of India granted tariff protection to this industry from January 1955 to December 1963.[2] The ancillaries produced in Bombay meet the needs of the automobile manufacturers in Bombay as also of others in the country. A number of items, such as leaf springs, diesel motor engines, electrical equipment, brake linings and clutch facings are exported in considerable quantities. The foreign exchange earnings by these concerns although not very large are symbolic in importance.

SHIPS, BOATS AND CRAFTS

The earliest evidence of ship-building activity is found in the archaeological remains of Mohinjo-daro dating back to some 2500–1500 B.C. There is literary as well as archaeological evidence to show that ship building was an ancient industry in India and that seafaring was a popular profession in coastal areas. The Sanskrit work *Yukti Kalpataru* is the earliest known treatise on the art of the ship building.[3] According to this source, there were as many as twenty-five different varieties of Indian ships. The Venetian traveller of the 13th century, Marco Polo left an account of ship-building in India. Indian ship-building survived throughout the middle age. The industry flourished during the 18th and early 19th centuries when the East India Company encouraged the fabrication of ships in India for its use. The industry was concentrated in Bengal. At that time on the west coast, a ship-building yard functioned at Surat, and later at Bombay. The Bombay Dockyard produced vessels for civilian use as well as for the use of the Royal Navy under the supervision of Parsi ship builders. The ships built in Bombay were not only durable but also cheaper than those built in foreign countries.

Indian ship building industry decayed during the latter half of the 19th century when the British authorities withdrew their support. Discriminatory rates of import duties in Great Britain on goods carried by Indian ships also created conditions for its decline.

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[1] *Handbook of Commercial Information*, 1963.

[2] Ibid.

[3] Radha Kumud Mookerji., *History of Indian Shipping*.

The need for revival of Indian shipping and ship-building industry was felt during the First World War when the requirements of overseas trade of the country and of naval defence became more and more pressing. A number of steamship companies were established at that time. One such company *viz.*, the Sciendia Steam Navigation Co. Ltd. which was set in 1919 was the pioneer in developing the modern ship-building industry in the country.[1] The company has a ship repairing workshop at present in Bombay.

The principal raw materials required in ship-building are steel and timber. About 20 to 30 per cent of the requisite materials are available in the country (1961). The categories of steel required are plates, bars, black sheets, G. I. sheets, steel wire ropes and heavy structurals. In addition paints and ancillary equipments are also required. Machinery and equipment like propellers have to be imported. Steel required for ship-building purposes which had to be imported formerly is now available from Rourkela. Wire ropes and paints are already being produced indigenously.

Mazagon Dock : Mazagon Dock Ltd., Bombay, was acquired by the Government of India in 1960. It was primarily a ship repair yard established in 1915. It is now a public sector undertaking incorporated as an autonomous commercial corporation and is one of the largest ship-building undertakings in India. The Government decided that the company's ship-building facilities should be considerably augmented and modernised to cater primarily for building warships and merchantships as well. In pursuance of this decision an expansion scheme was launched in 1964 and completed in 1970-71. Two new ship-building berths with necessary cranes and other essential services have been provided. These berths are capable of accommodating ships upto approximately 15,000 LWT. The Production and Assembly Shop, Weapons and Electronic Complex and several other workshops were built and expanded with all modern facilities. The tidal Kasara Basin has been converted into an impounded wet dock capable of accommodating four medium size ships at a time. With these modern shops, ship-building berths, machinery, equipment and associated facilities, Mazagon Dock is now capable of building various types of ships such as, (*a*) sophisticated warships, (*b*) passenger ships, pssenger-*cum*-cargo ships and cargo ships, (*c*) dredgers, (*d*) tugs, barges, trawlers, etc. Three Leander class frigates built by the Mazagon Dock have already been commissioned in the Indian Navy. It is remarkable that the frigates are of fully Indian design. A luxury passenger-*cum*-cargo vessel designed and built for the first time in India was delivered by Mazagon Dock to the Shipping Corporation of India in December 1974. This ship is now plying on international routes.

[1] *Handbook of Commercial Information*, 1963.

During the decade 1965-75, the value of production and foreign exchange earning of the company rose from Rs. 3,86 lakhs and Rs. 1,21 lakhs to about Rs. 37,38 lakhs and Rs. 10,54 lakhs, respectively. In addition to shipbuilding the Mazagon Dock hss also built up substantial capacity for ship-repair work. During 1974-75 as many as 673 ships were repaired out of which about 282 were foreign vessels.

This company has also built for the Indian Navy a bucket dredger, two inshore mine-sweepers, two *Avcat* tankers designed to carry aviation fuel. It has received orders for constructing six off-shore fixed well platforms for the Oil and Natural Gas Commission. The annual production turnover of the company registered a growth from Rs. 1,63.61 millions in 1970-71 to Rs. 5,33 millions in 1977-78.[1]

The Mazagon Dock is a symbol of national pride and progress in the production of sophisticated warships. It occupies a place of honour among the few producers of Leander type frigates in the world.

RAILWAY ROLLING STOCK

The first Indian railway ran over a stretch of about 34 kilometres from Bombay to Thane on April 16, 1853. Since then the Central and Western Railways emanating from Bombay expanded over a large part of the country. The railway system brought engineering workshops in its wake initially for the maintenance and servicing of rolling stock, and in the course of time for manufacture of passenger coaches and other rolling stock. As per the *Wealth of India* (*Part II*), the then B. B. & C. I. Railway built a particular type of carriage for passengers in 1863. The early carriages were built of timber seasoned teak. The designs and construction of carriages showed considerable improvement from the beginning of the present century with the introduction of continuous vacuum brake and bogie carriages.[2]

The original locomotive works of the Great Indian Peninsula Railway (now Central Railway) were opened at Byculla about 1854, and provided employment to about 800-1,000 operatives. In the course of time the expansion of the railway forced the company to look for a larger area and in 1878 it was shifted from Byculla to the present workshop at Parel. The latter workshop was found, subsequently, too limited to cope up with the volume of work, and the carriage and wagon shops were removed to Matunga, in about 1909-10. The G. I. P. Railway workshops provided employment to about 7,826 persons in 1909.

The Central Railway have five workshops in Bombay at present, *viz.*, Locomotive Workshop at Parel, the Matunga Carriage and Wagon Workshop, Signal and Telecommunication Workshop at Byculla, Electric Multiple Unit Car Shed at Kurla and Diesel Loco Shed at Kurla. The

[1] *The Times of India Directory and Year Book*, 1980-81.
[2] *Handbook of Commercial Information*, 1963.

Locomotive Workshop at Parel established in 1878 is primarily meant for periodical overhauling, major repairs and special repairs to steam, electric diesel hydraulic, diesel, electric engines and cranes. As many as 264 locomotives were overhauled and repaired in this workshop in 1976-77. The workshop also carried out repairs and overhauling of 40 cranes and 66 non-locoboilers in the same year. Many locomotive components are also manufactured in this workshop which provided employment to about 6,900 persons in 1976-77.

The carriage and wagon workshop at Matunga undertakes major as well as special repairs and periodical overhauling of carriages and wagons. About, 3,609 passenger carriages and 4,113 railway wagons were repaired and overhauled in this workshop in 1976-77. It employed about 5,900 persons in the same year. A special vestibular railway coach with comfortable chair cars for the Deccan Queen plying between Bombay and Pune was also manufactured in the Matunga workshop.

The signal and telecommunication workshop at Byculla undertakes repairs, periodical maintenance and manufacture of signal and telecommunication equipment. It also undertakes repairs of medical equipment. The articles manufactured include self-printing ticket machines, C. P. Valves, AWC-2 Zincs, wagon retarders, moped trollies, axle counters, etc. A fully equipped maintenance and repairs cell for ultra-sonic Flaw Detectors and Rail Testers has been set up in this workshop. About 950 persons are employed in this workshop.

The Electric Multiple Unit Car Shed at Kurla undertakes overhauling and repairs of electric equipments of local train coaches which are maintained here. The car shed, as on 31st March 1977, had a capacity of holding about 284 motor coaches and 434 trailer coaches which are used for the running of over 853 local trains daily. As many as 444 electric multiple coaches were overhauled and 21 were specially repaired in the car shed in 1976-77. It provided employment to about 2,300 persons in the same year.

The Diesel Loco Shed at Kurla undertakes the repairs of diesel hydraulic engines which are utilised mainly for yard shunting and for running pilots and shunters on Bombay-Kalyan railway section. It overhauled 54 engines and provided employment to 400 persons approximately in 1976-77.

Besides, there is a maintenance shed at Bombay-V. T. for repairs to mail/express train engines.*

The Parel Workshop of the then Bombay-Baroda and Central India Railway was opened in 1868. The workshop was, in those days, chiefly engaged in repairing the company's rolling stock and in building carriages and wagons of every description. Locomotives were imported from

* Based on information supplied by the Central Railway.

England and fitted up in the workshop. Upto 1880 the workshop employed about 1,500 to 2,000 men which number increased to 4,062 in 1909. The workshops were under charge of a Locomotive and Carriage Superintendent aided by an Assistant Locomotive Superintendent and an Assistant Carriage and Wagon Superintendent who were Europeans.[1]

There are two Loco Sheds of the Western Railway at present in Bombay *viz.*, Parel Loco Shed and Bandra Loco Shed. Besides, there are two carriage shops at Lower Parel and Mahalaxmi, and an Electric Car Shed at Bombay Central.

The Parel Loco Shed homes about 40 railway engines which are serviced, maintained and repaired regularly. Seventy-five per cent of the engines are used for the hauling of mail, express and passenger trains.[2] The shed is equipped with machinery and technical staff (675 persons in 1969-70). The Bandra Loco Shed is equipped to overhaul and repair about 50 steam and diesel engines, most of which are utilized for shunting goods trains. The shed provided employment to about 1,050 persons in 1970.

The Lower Parel Carriage Shop was built in 1900 as a central workshop for repairs to broad gauge locomotives, carriages and wagons. The locomotives workshop was subsequently shifted to Dohad in 1928 due to paucity of accommodation at Lower Parel. Like-wise a new wagon repair shop was constructed at Kota in 1962. After shifting of the above referred workshops to Dohad and Kota, the Parel and Mahalaxmi Workshops are presently engaged in periodical overhauling and repairing of broad gauge coaching stock only.

The Electric Car Shed at Bombay Central deals with maintenance and repairs of electric motor coaches. It is provided with the necessary machinery and technical personnel.[3]

B.E.S.T. WORKSHOPS

The first engineering workshop of the Bombay Electricity Supply and Tramways Company was established in 1886 at Colaba to repair trams in Bombay. The workshop provided employment to 275 operatives in 1909. It was shifted to Kingsway at Dadar in June 1915 on account of the complaints of the residents at Colaba. After incorporation of the bus service in Bombay a new workshop was opened at Colaba in 1926 for bus repair. With the expansion of the fleet of the BEST the Colaba workshop was felt to be inadequate. It was therefore imperative to attach a bus workshop to the tram workshop at Dadar. Subsequently the entire workshop at Colaba was shifted to Dadar in 1950. With the discontinuance

[1] *Gazetteer of Bombay City and Island*, Vol I, 1909.
[2] Now most of the trains are hauled by electric locomotives from Bombay (1983).
[3] Information supplied by the Western Railway.

of tram service in 1964, the tram workshop was converted into bus workshop and the employees were absorbed in the bus workshop at Dadar.[1]

The BEST central workshop at Dadar is a very big one providing the necessary machinery for repairing and overhauling the entire fleet of 1,929 buses in Bombay. The workshop is equipped to overhaul the chassis of buses, bus bodies, mechanical repairs and painting of buses.

BICYCLE INDUSTRY

The history of bicycle industry not only in Bombay but also in India dates back to 1939 in which year the Hind Cycles Ltd. started manufacture of a complete bicycle in Bombay. The company is one of the pioneers in the manufacture of bicycles and spare parts in India. It has its factory in Worli area, and also has put up a new unit at Kandivli for assembly of Besini Auto Engines.

The year 1939 saw the commencement of the production of a complete bicycle in India by the Hind Cycles, Bombay and another unit at Patna. The products of the industry were highly in demand by the defence services of the country. The two factories supplied 55,000 bicycles for the defence services during the Second World War. The factories were faced with foreign competition after the cessation of war. The industry was therefore granted protection in March 1947 in the form of conversion of the revenue duties into protective duties. The protection was reviewed from time to time and rates of duties were changed from time to time. The protection was extended upto December 1963. The combined installed capacity of the two units in Bombay and Patna was 120,000 bicycles per annum at the commencement of the First Five-Year Plan,[2] while their actual production was 101,126 in 1950-51.[3]

From humble beginnings in 1939, the bicycle industry has grown considerably in dimensions, and it meets the fast growth demand from all over the country. Besides indigenous demand, the industry exports a large number of bicycles. In 1951-52, the number of bicycles imported were 2.83 lakhs, while self-sufficiency was attained in 1958 and the Govt. banned import of bicycles and components except for some accessories and special metals which are required for manufacturing. The Hind Cycles Ltd. was subsequently taken over by the Govt. in public interest. It is now known as the National Bicycle Corporation of India, Worli, and has two plants in Bombay. It has an installed capacity to manufacture two lakh bicycles per annum, its sales turnover amounting to Rs. 6.74 crores in 1977-78. The Central Distributors Ltd., Bombay, acts as financial guarantor to the Hind Cycles. It also manufactures bicycle

[1] *B.E.S.T. Upakramachi Katha* (Marathi).
[2] *Handbook of Commercial Information*, 1963.
[3] *Kothari's Investor's Encyclopaedia.*

components and parts. Besides, there are a few small-scale units in Bombay which started production of components and spares. The Bicycle Manufacturers Association of India has created an Export Pool for assisting its member concerns in finding export markets for Indian bicycles.

Most of the raw materials required by the industry can be had from indigenous sources, while imports are confined to steel tubes, cold rolled steel strips and bars, etc. Efforts are on the way to reduce the imported constituents.

The Annual Survey of Industries of 1975-77 does not give separate statistics for this industry. However the 1973-74 A.S.I. gave statistics for a group covering bicycles, cycle-rickshaws and parts. As per the Annual Survey of 1973-74, there were 17 registered factories which provided employment to 1308 employees including 1077 workers. The fixed capital in these factories was Rs. 49.74 lakhs, the working capital Rs. 96.51 lakhs and invested capital Rs. 190.53 lakhs. The factories paid Rs. 48.17 lakhs by way of emoluments including Rs. 29.06 lakhs as wages to workers. The fuel consumption of the factories was limited to Rs. 9.95 lakhs, the raw material consumed being worth Rs. 482.78 lakhs. The value of plant and machinery was Rs. 80.94 lakhs.

The products of the industry were valued at Rs. 588.93 lakhs. The total output and total inputs were computed at Rs. 609.66 lakhs and 509.05 lakhs, respectively in the year. The value added on manufacture was estimated at Rs. 93.49 lakhs in 1973-74.

METAL PRODUCTS AND PARTS

This is a broad sector of industry which covers a wide range of manufacturing activity. The various segments of this sector are conceived to cover (*i*) manufacture of fabricated metal products, such as metal cans from tinplate, terneplate or enamelled sheet metal, metal shipping containers, barrels, drums, kegs, pails, safe vaults, enamelled sanitary equipment, (*ii*) manufacture of furniture and fixtures primarily of metal, and (*iii*) manufacture of hand tools and general hardware. This classification accords with the one adopted by the authorities of the Annual Survey of Industries, 1975-77. The 1973-74 Survey gives separate statistics for many more segments, and the same are utilised wherever necessary. Before giving an account of the various segments of this industry, it may be useful to give an analytical account of the metal products and parts industry at the outset. This analysis is based on the Annual Survey of Industries in 1975-77. The figures stand for the annual averages for the survey period.

As per the Annual Survey of Industries of 1975-77, there were 751 registered factories in this industry in Bombay which formed 67.05 per cent

of the industry in Maharashtra. The industry in this city provided employment to 37,818 persons which constituted 70.52 per cent of the employment in the State. The capital invested by the Bombay metal products manufacturing units was computed at Rs. 1,00,24 lakhs constituting 67.12 per cent of the investment in the Maharashtra industry. The output of the factories in Bombay was computed at Rs. 2,16,91 lakhs or 72.32 per cent of that in the State. The value added on manufacture by the Bombay concerns was to the tune of Rs. 57,93 lakhs which formed 72.98 per cent of that in Maharashtra. This analysis leads to some obvious conclusions. Bombay occupies a place of honour in Maharashtra as regards this industry, as about 72 per cent of the production is done here. The output of the industry in Bombay is more than double the capital investment. The value added on manufacture is about 57 per cent of the fixed capital. This shows the higher productivity and higher returns on capital.

As per the A.S.I. there were 532 registered factories in this industry in Bombay in 1973-74 which increased to 751 in 1975-77. The total employment provided by the industry in 1973-74 and 1975-77 was estimated at 39,092 including 30,545 workers, and 37,818 including 28,446 workers, respectively. The position in respect of capital is given below :—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	32,75.57	36,16.04
Working capital	33,95.46	31,48.57
Capital invested	82,83.99	1,00,24.45
Outstanding loans	46,98.84	82,86.16

It follows from the above statistics that there was a rise in fixed capital and capital invested. But this rise was not commensurate with that in the number of factories in 1975-77. The industry in Bombay worked for 1,09,21,303 man-days in 1975-77.

The structure of costs incurred by the factories in Bombay can be studied by the following statistics:—

(Rs. in lakhs)

Item	1973-74	1975-77
Wages to workers	15,53.13	17,34.77
Total emoluments	21,85.64	29,82.49
Fuel consumed	3,09.46	5,30.01
Material consumed	94,24.65	1,24,67.85
Other inputs	N.A.	25,05.09
Total inputs	1,07,01.48	1,55,02.95

Thus, there was an all-round increase in the costs incurred by the factories, it being most marked in the case of raw material consumption and value of total inputs. The value of plant and machinery was computed at Rs. 34,81.65 lakhs in 1973-74 and Rs. 46,37.62 lakhs in 1975-77.

The position about the output of the industry is stated below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Value of products	1,43,30.61	1,94,60.69
Other output	N.A.	22,30.31
Total output	1,53,68.27	2,16,91.00
Depreciation	3,16.42	3,94.68
Value added on manufacture ..	43,50.36	57,93.36

The above figures show a conspicuous increase in output of the Bombay metal products industry over the years under reference. The value of factory payments was computed at Rs. 11,54.70 lakhs and net income at Rs. 46,38.67 lakhs in 1975-77.

It can be deduced from the above analysis that though this may not be a labour-intensive industry like cotton textiles, it has a large employment potential. The share of wages paid to workers in the total emoluments is rather less. The ratio of total output to total inputs shows the satisfactory position of the industry. The value added on manufacture is quite high. The net income of the factories is almost 46 per cent of the invested capital which means a very high rate of returns on capital.

Several large companies in Bombay are engaged in manufacture of metal products. They together constitute a growing sector of the industry of Bombay. Many of the companies have foreign collaboration arrangements with reputed concerns in the Western countries. The collaboration in some cases is in regard to financial participation as well as technical know-how, while in some cases it is only as regards technical know-how. The industry in Bombay has derived considerable advantages on account of such collaboration agreements. The industry in Bombay is found to take roots in the thirties of this century. It however received an immense stimulus during the Second World War when there was a virtual stoppage of imports of metal products on account of War demand in the exporting countries. The demand from growing industrialisation in this period also enlarged the growth of the indigenous industry. It is well-known that all industries were passing through a period of boom during the war which required a huge quantity of equipment. This demand encouraged the expansion of existing metal engineering plants and the incorporation of new ones in Bombay.

The defence efforts of the then Government of India also provided a tremendous encouragement to the growth of metal engineering as the products were essential for equipping the defence services as well as the defence equipment production in the country. The Government extended the necessary assistance to the industry. The cessation of hostilities in 1945 however brought about conditions of a mild slump in the industry on account of demand recession and foreign competition. Since there was no ban on imports, the articles were freely imported which confronted the indigenous industry. The Government of India was persuaded from time to time for the granting of protection to the infant industry. The appeals for tariff protection were considered, and protection was granted from time to time.[1]

The real growth of the industry was however achieved after Independence. The Government of India adopted a purposeful growth-oriented policy. The appeals for protection were considered very sympathetically. The industry thus received Government protection, though not virtual patronage. With the further growth of the industry in Bombay, Calcutta, Jamshedpur and many other centres, the Government of India banned the import of the many metal engineering products. The inevitable result was the progress of the indigenous industry. The production was diversified to meet the demand from the clients and to achieve economies of scale. The production was not confined to metal products, but was also diversified to the production of machinery and equipment for the growth of the machinery industry in Bombay as well as in India. In fact many of the members of this industry are manufacturing machinery and equipment also.

It is attempted below to give an account of some of the well-known manufacturers in Bombay, on the basis of available information. It is possible that the companies whose information is not available may also be large-scale manufacturers of reputation.

The Guest Keen Williams Ltd., incorporated on 17th February 1931 at Calcutta, was converted into a public limited company in 1956. The Bhandup plant of this company commenced in September 1953, which is now the largest producer of high class steel and brass wood screws in India.[2] The Precision Pressings division of the company at Bhandup, besides its plants at Howrah and Bangalore, is ranked among the largest and the most versatile engineering groups in the country. The activities of this division help the nation's power and energy programme and its products are essential to the generation, distribution and utilisation of electric power for industrial and domestic purposes. The range of its products include a large variety of electrical steel stampings, laminations,

[1] *Handbook of Commercial Information*, 1963.
[2] *Kothari's Investor's Encyclopaedia.*

strip wound cores, precision pressed and deep drawn sheet metal components, precision press tools, jigs, fixtures and dies.[1] It also manufactures fasteners, rivets, spikes, screws of various types, cotter pins, safety pins, bolts and nuts and other industrial fasteners.

The turnover of sales of the Guest Keen Williams amounted to Rs. 41.34 crores in 1978-79 and Rs. 50.81 crores in 1979-80.

The Indian Smelting and Refining Company, established in 1931, has factories at Bhandup and Pokharan (Thane). It manufactures brass sheet, strip coils, non-ferrous alloys, castings, etc., the sales turnover of which was of the order of Rs. 17.54 crores in 1977-78.[2]

The Kamani Engineering Corporation, incorporated in 1945 has a plant at Kurla. It is a well-known manufacturer of high tension transmission line towers, track structures, rural electrification poles, railway electrification structurals, road rollers, flood light poles, signalling posts, and fabrication of a number of items. The sales turnover of this company was of the order of Rs. 17.01 crores in 1978-79 and Rs. 16.61 crores in 1979-80. It has an installed capacity to produce 45,000 tonnes, its actual production being 21,500 tonnes in a latest year. The Kamani Tubes Ltd. manufactures non-ferrous metal tubes, the turnover of which was worth Rs. 5.86 crores in 1976-77.[3]

The Godrej & Boyce Co. with two factories at Vikhroli and one at Lalbaug in Bombay is by far the oldest and the largest manufacturer of metal products such as steel furniture, cupboards, safes, locks, padlocks, refrigerators, machine tools and a wide range of industrial goods and consumers goods. Its sales turnover of all products was as high as Rs. 86.42 crores in 1978-79 and Rs. 107.64 crores in 1979-80. The Fit Tight Nuts & Bolts Limited, incorporated in 1957, has a factory on Andheri-Kurla Road, besides another at Porbandar. It is a very large manufacturer of high tensile fasteners and items for industries, such as, automobiles, tractors, machine tools, marine engines, diesel engines, electrical equipment. It also produces special type of nuts, bolts, and many producers goods. The sales turnover of the company was Rs. 8.29 crores in 1978-79 and Rs. 10.65 crores in 1979-80. The Graham Firth Steel Products Ltd. with a factory in Bombay has an annual production capacity to produce 9,000 tonnes of narrow cold rolled steel strips. Its turnover of sales was worth Rs. 5.63 crores in 1979--80. The Special Steels Limited with a factory at Borivli, besides another one at Tarapore, is a manufacturer of steel wires, high carbon steel wires, tyre bead wires, pre-stress concrete wires, flat strips, bright drawn bars and alloy steels. The turnover of its sales was to the tune of Rs. 26.31 crores in 1978-79 and Rs. 31.44 crores in 1979-80. The Metal

[1] IEMA, 1974.
[2] *A State-wise Picture of Large Scale Industrial Activity*, 1981.
[3] Ibid.

Box India, a foreign company, was incorporated in 1933. It has two factories in Bombay at Worli and Trombay. It is a reputed manufacturer of metal containers, drums, closures, hardware and publicity materials, aluminium extrusions, special purpose package fabrication and machinery components. The turnover of sales of this company was worth Rs. 18.34 crores and Rs. 36.92 crores, respectively in 1978-79 and 1979-80. The Zenith Tin Works, incorporated in 1938, has a factory at Mahalaxmi, which is a large-scale manufacturer of metal containers, aluminium collapsible tubes and pilfer proof lamps. Its sales turnover was Rs. 7.71 crores in 1978-79. The Gannon Dunkerley & Co., incorporated in 1924, has a factory at Mahul which manufactures LPG cylinders and fabrications on a large scale.

The Khira Furniture Co. is a manufacturer of steel furniture and cupboards. The Steelage Industries Limited, established in 1932, has a factory at Mazagaon which produces bank security products, safes of varying types and qualities, safe deposit lockers, steel furniture and cupboards.

The Killick Nixon Ltd. with a factory at Chandivli was incorporated in 1947. It manufactures jacks, pumps, ductiflex sheatings, furnaces and vibrators, the sales turnover being to the tune of Rs. 7.76 crores in 1978-79 and Rs. 9.73 crores in 1979-80. The Bombay Forgings Ltd. with factories at Kalina and Mahalaxmi is a manufacturer of closed die castings, steel forgings and tooth brushes. Its sales turnover was valued at Rs. 5.56 crores in 1977-78.[1] It was established in 1966. The Hindustan Transmission Products Ltd. has a factory at Chandivli which manufactures enamelled copper wires, strips, products of copper scrap, insulating varnishes etc. It was established in 1940.

The Structural Engineering Work Ltd. incorporated in 1943 at Bombay is equipped for design, fabrication and erection of steel frame building, bridges, towers, tanks, chimneys, aeroplane hangers, pressure vessels, transmission towers, kiers, etc. It also manufactures oil and vegetable ghee plants, sugar factory vessels, etc.

The National Steel Works Ltd. originally established in 1940 in Lahore was shifted to India in 1947. It is engaged in rerolling steel bars of various categories. It has a production capacity of 18,000 tonnes per annum. It has a factory at Parel Tank Road.[2]

The above survey though exhaustive is no means complete. There are many other concerns which manufacture a wide range of metal products. The above survey suggests that the growth of this industry gathered momentum in the thirties. Many of the reputed concerns entered the field during the Second World War period, while the development was

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.

[2] *Kothari's Investor's Encyclopaedia.*

accentuated during the fifties of this century. It is now a developed industry equipped with modern and sophisticated plants and machinery, and has a honoured position in the economy of Bombay as well as the country.

METAL CANS, SHIPPING CONTAINERS, BARRELS, DRUMS AND METAL CONTAINERS

According to the Annual Survey of Industries, this sector of manufacturing is conceived to cover fabricated metal products such as metal cans from tin plates, terneplate or enamelled sheet metals, metal shipping containers, barrels, drums, kegs, pails, safes, vaults, enamelled sanitary and other fabricated metal products not elsewhere classified. This is a very broad grouping which covers several products although of similar nature. It is, therefore, quite difficult to present an account of the industry at the micro-economic level. Hence a general account of the industry based on the Annual Survey of Industries statistics and the published information about some of the important manufacturers in Bombay is given below. An attempt is also made to go to the micro-economic level.

The fabrication of metallic containers commenced in Bombay during the First World War when supplies required by the Oil Companies became scarce in the country. The sustained growth of the industry had however to await the development of the indigenous steel industry and the installation of the first tin plate manufacturing plant during the second decade of the present century. Improved metal packaging techniques were introduced in the country for the first time in the early nineteen thirties.* The industry progressed rapidly after the Second World War. The growth of this industry has been directly related to that of other industries as its products are mainly in demand by other industries.

The products of the industry which can broadly be called metal containers are used for canning food-stuffs, and for storage or carriage of oils, chemicals, lubricants, paints, pharmaceuticals and toiletries. The shape and size of the containers vary according to the uses to which they are put. Large drums and barrels are required for bulk transport of mineral oils, and petroleum products. The petroleum industry requires drums of a capacity of 200 litres and above. Medium sized drums and kegs are utilised mainly for carrying vegetable oils and chemicals. Open top cans are required for packing processed and preserved fruits, vegetables and dairy products. Tin plate containers are in demand by the confectionery, biscuit, edible oils, baby foods, paints, insecticide and toiletry industries. Tooth-paste manufacturers, ointment producers and

* *Handbook of Commercial Information*, 1963.

photographic films use very small containers in the shape of rigid or collapsible tubes made, generally, of aluminium foil. Thermo-plastic containers are now replacing metal containers in some of the industries as packing materials.

The recent technological improvements have succeeded in manufacturing tamper-proof containers which ensure the purity and non-contamination of the products to be packed. Their quality has further been improved by coating the inside of the containers with particular types of lacquer paints.

The growth of the petroleum industry, vanaspati, preservation of food articles, chemicals and pharmaceutical industries after the Second World War accentuated the development of the metal container industry in Bombay. The growing supply of liquefied petroleum gas, shipping containers and many industries provided a further stimulus to the industry.

A number of large concerns, some of them with foreign collaboration, have developed in Bombay. The Metal Box Company of India Ltd., initially founded at Calcutta in 1933, has two factories in Bombay. This foreign concern is specialised in tin-printing and the production of open top cans for processed food-stuffs, tin plate containers, composites, collapsible and rigid tubes, polyethylene bags, insecticide sprayers, trays, toys, pilfer-proof closures, industrial components and other hardware. The value of sales by this concern increased from Rs. 18.34 crores in 1978-79 to Rs. 36.92 crores in 1979-80.[1] The Zenith Tin Works with a factory at Mahalaxmi in Bombay manufactures various types of metal containers, pilfer-proof closures and extruded products. It has an installed capacity to produce 16,500 tonnes of metal containers. Its sales were reported to be about Rs. 7.71 crores in 1978-79.[2] The Gannon Dunkerley and Co. has a factory at Mahul near Trombay. It has specialised in the manufacture of liquefied petroleum gas cylinders and fabrication work connected with the same, the value of its sales being Rs. 1.39 crores in 1979-80. The Poysha Industrial Company with a plant at Sewri is another manufacturer of metal containers and battery jackets. The Mahindra Owen is developing a plant for manufacture of shipping containers which are so very essential for the shipping industry. Besides, there are many other concerns in this industry in Bombay, and the structure of the entire industry is analysed below.

As per the Annual Survey of Industries, there were 144 registered factories engaged in the industry in Bombay in 1973-74. Their number increased to 239 in 1975-77. Most of the new units enumerated in the 1975-77 survey might be small-scale units. There was no increase in

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.

[2] Ibid.

employment or in capital investment in 1975-77 over those in 1973-74 The total employment in these factories showed a decline from 14,361 persons (including 11,436 workers) in 1973-74 to 11,748 persons (including 9,208 workers) in 1975-77. The trend in capital, as per the survey, is given below :—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	10,48.97	11,05.13
Working capital	14,06.70	13,80.37
Capital investment.. ..	29,81.11	28,72.36
Outstanding loans	14,76.49	19,97.68

The industry worked for 3,409,967 man-days as per the 1975-77 survey. The payment of wages to employees was to the tune of Rs. 8,51.62 lakhs including Rs. 6,93.15 lakhs paid to workers in 1973-74, the corresponding figures being Rs. 9,01.09 lakhs and Rs. 5,56.94 lakhs per annum as per the 1975-77 survey. The value of fuel consumed amounted to Rs. 91.15 lakhs which increased to Rs. 1,62.95 lakhs in 1975-77. The factories utilised raw materials to the extent of Rs. 49,79.66 lakhs in 1973-74 and Rs. 53,31.24 lakhs per annum in 1975-77. The other inputs of the units were valued at Rs. 805.70 lakhs in 1975-77. The value of total inputs by the firms stood at Rs. 55,34.24 lakhs in 1973-74 and Rs. 62,99.89 lakhs per year in 1975-77. The value of plant and machinery during the years under study was placed at Rs. 12,48.45 lakhs and Rs. 15,13.56 lakhs, respectively. The position of the value of production of the units in Bombay was as given below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Value of products	69,42.98	74,60.86
Other output	N.A.	6,97.96
Total output	73,04.59	81,58.82
Depreciation	1,03.81	1,25.21
Value added on manufacture ..	16,66.53	17,33.72
Factory payments	N.A.	2,89.59
Net income	N.A.	14,44.13

The above statistics lead to some conclusions about the industry in Bombay. Firstly, there was a fall in employment inspite of the increase in the number of factories in 1975-77. Secondly, while there was an increase in the total emoluments to employees, the payment of wages to workers declined. Thirdly, the increase in the use of raw materials during the

1975-77 survey was not commensurate with the increase in the number of factories. Fourthly, the value of total inputs was about 75 per cent of the value of output as per the 1975-77 survey. Fifthly, the net income of the concerns was about 50 per cent of the capital investment of the concerns as per the 1975-77 survey. It means excellent returns over capital investment.

It may be pertinent to write about the raw materials used by the industry. Drums and kegs are made of mild steel sheets or galvanised iron sheets of varying thickness. Large drums are manufactured from thick deep-drawing quality steel sheets which are processed hot rolled, cold rolled, pickled, dried and oiled. Capsules are made of tin plates. For tin plate containers the raw materials are black sheets coated with tin. The tin is imported from abroad. Some of the products of the industry are exported to Burmah, Sri Lanka, Kenya and Thailand.[1]

FURNITURE AND FIXTURES OF METAL

The steel furniture industry first appeared as an off-shoot of the organised manufacture of improved locks and safety locker equipments. It is as old as the present century. It has grown fast with the nourishment provided by the increasing indigenous availability of steel sheets and other material. Towards the end of the 19th century, a pioneer firm in Bombay, namely, the Godrej Boyce Manufacturing Company, engaged in the manufacture of improved locks succeeded in producing steel safes, which were found to be of acceptable quality. Soon after, the experiments of the firm with safes led to the manufacturing of steel furniture, and thus the foundations were laid for, what has turned out to be one of the important engineering and metal products industries not only of Bombay but also of India. It is claimed that production of Indian steel cupboards developed earlier than elsewhere. The industry expanded considerably after the Second World War in general and the mid-fifties in particular. Many factories were established in Bombay and its environs. The growth of the industry is attributable mainly to the expanding use of steel furniture in offices, libraries, hospitals, shops and establishments, and households. The increased use of steel furniture is mainly due to its pronounced advantages in respect of economy of space, durability, economy of costs, risk of fire and increasing scarcity of good seasoned wood.

The renowned steel furniture manufacturers in Bombay are the Godrej Boyce Manufacturing Co., Khira Furniture Co., Zenith, Steelage, besides which there are several small manufacturers in Greater Bombay and its periphery. The industry is now decentralising to the suburbs. During the post-Independence period Ulhasnagar near Bombay is emerging as

[1] *Handbook of Commercial Information*, 1963.

an important centre of the industry. In fact the Ulhasnagar manufacturers are now confronting the Bombay manufacturers as regards price competition, though they are found to compromise quality in favour of lower prices. Though the connoisseurs of good quality and the well-to-do prefer the products of the renowned manufacturers, the humble purchasers are found to have a preference for Ulhasnagar products.

As per the Annual Survey of Industries, there were 19 factories manufacturing furniture and fixtures of metal in Bombay in 1973-74 which increased to 29 in 1975-77. These factories provided employment to 6,874 persons including 5,245 workers in 1973-74. The employment increased to 7,445 persons inclusive of 5,869 workers in 1975-77. The combined position of capital of the factories covered under the Annual Survey is given below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	7,62.75	8,84.92
Working capital	5,61.39	5,39.28
Capital investment	21,61.44	24,06.29
Outstanding loans	12,07.21	14,50.35

The industry worked for 22,41,670 man-days per annum during the 1975-77 survey period, on an average. The annual wages paid to all employees were to the extent of Rs. 518.60 lakhs inclusive of Rs. 284.08 lakhs by way of wages to workers in 1973-74. The corresponding average annual wages increased rapidly to Rs. 804.13 lakhs and Rs. 454.81 lakhs in 1975-77 period. This position brings home two conclusions. Firstly, the rise of wages was considerably high. Secondly, the proportion of wages to workers in the total wage bill of the industry was comparatively low. This might be attributable to the preponderance of skilled engineers, technocrats and managerial personnel in the industry over workers.

The factories consumed fuel valued at Rs. 64.16 lakhs in 1973-74 and Rs. 110.52 lakhs per annum in 1975-77. The consumption of raw materials by them was valued at Rs. 15,90.16 lakhs in 1973-74 and at Rs. 23,30.35 lakhs per year in 1975-77. This shows an increase of about 50 per cent. The other inputs of the factories were to the tune of Rs. 3,74.59 lakhs per annum in 1975-77. The total value of inputs of the factories increased from Rs. 17,51.50 lakhs in 1973-74 to Rs. 28,15.47 lakhs in 1975-77. The value of plant and machinery of the units was Rs. 1,21.31 lakhs in 1973-74 and Rs. 8,09.16 lakhs in 1975-77, which shows a rise of about 670 per cent. It means that the value of plant and machinery might have appreciated either due to expansion or rise in their prices or both the factors combined together.

The structure of output of the industry can be studied from the statistics below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Value of products	26,53.53	40,86.95
Other output	N.A.	3,63.81
Total output	28,32.12	44,50.76
Depreciation	72.35	89.57
Value added on manufacture ..	10,08.27	15,45.72
Factory payments	N.A.	2,05.02
Net income	N.A.	13,40.70

The conclusion imminent from the above statistics is that the output of the industry increased by about 120 per cent in the 1975-77 survey period over that in 1973-74. The value of products however, increased only by about 50 per cent, while the value added on manufacture by about 52 per cent. It means that the higher rate of growth in the value of output might be due to the higher value of other outputs which included bye-products in 1975-77 period. The steel furniture and fixtures industry in Bombay appears to be more capital intensive and less labour intensive. The ratio of net income to capital investment appears to be quite high. The industry offers a higher rate of return on capital.

The steel furniture manufactured by the concerns in Bombay includes pedestal desks and side tables, tubular revolving-tilting chairs, tubular counter chairs, tubular writing tables with drawers, arm chairs, adjustable typist chairs, nesting chairs, factory workmen chairs, sofa-sets, steel safe-cabinets, lockers, steel coffers, cash boxes, card cabinets, almirah and cupboards, open book shelves for libraries, other library equipment, etc. Besides, steel furniture, light and dainty furniture, particularly for furnishing drawing rooms, made of aluminium has come into vogue in very recent years. Aluminium chairs with upholstery are being produced increasingly as they are in demand in Bombay.

Formerly certain types of steel furniture, particularly for office and hospital uses were required to be imported to meet domestic needs. The imports were mainly from the U.K., Czechoslovakia, West Germany, Switzerland, the Netherlands, Italy, U.S.A. and Japan. During the last few years, however, steps had been taken to stimulate the export of steel furniture. The items of good quality are exported to Kuwait, Thailand, Sri Lanka, Afghanistan, Uganda, Nigeria, Singapore and Burma.[1]

[1] *Handbook of Commercial Information*, 1963.

SMALL TOOLS, HAND TOOLS AND ACCESSORIES

Small tools and hand tools cover a wide range of items. In general, however, they cover cutting tools, precision and measuring tools and machine tool accessories. Hand tools are used by carpenters, blacksmiths, masons, fitters and craftsmen. According to the Report of the Indian Tariff Board on the small tool industry (1949), the first twist drills, reamers and cutters were made by a firm in Bombay city in 1937 and this was the only firm of its kind in India engaged in this line of industry even upto 1943.[1] The Second World War provided an impetus to the growth of industry, and it was between 1943 and 1946 that two more units came into the field, one in Bombay and another in Secunderabad. Thus in 1946 there were only two firms in Bombay which manufactured small tools and hand tools.

After the Report of the Tariff Board in 1949 several steps were undertaken to help the industry. The Government of India imposed restrictions on the import of such tools so as to grant protection to the infant industry. Besides, a statutory provision was also made for refund of a portion of import duty leviable on raw materials required for the manufacture of small tools indigenously. This concession was particularly in respect of import duty on special steel which was essential for the indigenous industry. Requirements of the Government for small tools were met from indigenous production as far as possible. These measures, coupled with the growing demand for small tools in various industrial sectors, stimulated the expansion of the industry. There was a diversification of products, particularly in the fifties and sixties. The industry produced threading taps and dies, lathe mandrels, drill sleeves, surface plates, measuring instruments, grinding wheels, abrasives and engineer's steel files.

Grinding wheels are required mostly to grind iron, steel and non-metallic materials including glass, marble, porcelain, precious stones, rubber, etc. Grinding wheels are extensively used in transport industries, machine tool building and in foundries.

Grinding wheels are also required for grinding non-metallic materials, and are further used for a large variety of works, such as tool and cutlery sharpening, cylindrical grinding, general and surface grinding, grinding of cereals etc. There are numerous varieties of grinding wheels which are required for different purposes.

It was during the outbreak of the World War II that a factory for the manufacture of grinding wheels was started in Bombay by Grindwell Abrasives Ltd., with the technical assistance of two Czechoslovakian engineers.[2] This was the pioneering unit in India in this industry. It was

[1] *Handbook of Commercial Information*, 1963.

[2] *Kothari's Investor's Encyclopaedia.*

followed by another unit in Amritsar, and in 1943 there were only two units in the country including the Bombay firm mentioned above. Even at the commencement of the First Five Year Plan these were the only two units producing grinding wheels in the country, with an annual capacity of 3,600 tonnes. The production capacity of the Grindwell Co. was stepped up to 1,000 tonnes during the First Plan.

The products of the industry comprise grinding wheels, grinding segments, stones, valve grinding paste and thread grinding wheels, special type of wheels, such as those required for production of razor blades, abrasive discs for railway workshops, mounted points and valve seat grinding wheels with steel bushes. There has been a marked increase in the demand for grinding wheels recently. The growth of hand tools, small tools and many other industries, has accentuated the demand for the products of this industry.[1] The claim of the industry for protection from foreign competition was first referred to the Tariff Board in 1945. After enquiry by the Board, protection was granted to the industry by restricting the import of grinding wheels of the varieties already being manufactured in India. Subsequently a protective duty was also imposed on grinding wheels and segments. The protection continued with varying rates of duties upto end of December 1959.[2]

The raw materials required for the manufacture of small tools comprise high-speed steel, alloy and tool steel, carbon steel, pig iron and coke, furnace oil and hardening oils. Most of these were imported formerly, but now they are indigenously available. The raw materials for coated abrasives are available in India, except for synthetic abrasive grains and Turkish emery. The principal raw materials used for grinding wheels are synthetic abrasive grains and bonding materials. Synthetic abrasive grains are imported in small quantity.

Among bonding materials, elastic bonding is imported, while vitrified and mineral bonding materials are indigenously produced. Fibre glass discs are also imported. Carbide powder required for certain tools was freely imported formerly, but it is available indigenously now.

The Indian Tool Manufacturers (1937), a private sector company with a plant at Sion, and subsidiary plants at Nasik and Aurangabad, is a manufacturer of reamers, drills, tool bits, gear hobs, taps, cutters and micrometers. It has modernised its factory at Sion very recently. The combined sales of the concern were to the extent of Rs. 7.95 crores in 1978-79 and Rs. 11.08 crores in 1979-80.[3] The S. S. Miranda (1975) owned by the Piramal Group has a factory at Kandivli which manufactures tool bits, hacksaws, metal cutting hand saws and carbide tipped tools. The value

[1] *Kothari's Investor's Encyclopaedia.*
[2] *Handbook of Commercial Information*, 1963.
[3] *A State-wise Picture of Large Scale Industrial Activity*, 1981.

of sales by this concern increased from Rs. 3.23 crores in 1978-79 to Rs. 5.35 crores in 1979-80.[1]

In the Annual Survey of Industries, hand tools and general hardware are classified together to form an industry group. According to the survey there were 134 registered factories in this industry in Bombay in 1973-74 which increased to 162 in 1975-77. The rise in the number of factories was, however, accompanied by a slight fall in employment, namely, from 8,942 persons including 6,762 workers in 1973-74 to 8,528 persons including 6,120 workers in 1975-77. The industry functioned for 24,50,177 man-days per year in 1975-77. The trend in the capital structure of the industry during the two survey periods can be studied from the following figures:—

(Rs in lakhs)

Item	1973-74	1975-77
Fixed capital	7,93.10	8,85.16
Working capital	8,30.28	7,34.90
Capital investment	17,48.07	21,75.09
Outstanding loans	10,65.36	14,67.78

It is obvious that with the exception of the fall in working capital which is inexplicable, there was a rising trend as regards fixed capital, capital investment and outstanding loans which was commensurate with the rise in the number of factories in Bombay. Despite the fall in employment there was an increase in emoluments and wages, *viz.*, from Rs. 5,11.06 lakhs including Rs. 3,80.89 lakhs paid to workers in 1973-74 to Rs. 6,87.97 lakhs inclusive of Rs. 3,88.84 lakhs paid to workers per annum during the survey of 1975-77. This rise could be attributed to the general rise in wages and dearness allowance.

The fuel consumption of the industry in Bombay increased very steeply from Rs. 57.18 lakhs in 1973-74 to Rs. 1,35.79 lakhs in 1975-77. The consumption of raw materials also registered a considerable increase from Rs. 11,80.66 lakhs to Rs. 18,83.41 lakhs during the years under study. The other inputs of the industry were valued at Rs. 5,10.24 lakhs per annum in 1975-77 period. The total inputs of the factories in this industry increased from Rs. 14,42.83 lakhs in 1973-74 to Rs. 25,29.44 lakhs in 1975-77 which means a rise of less than double. The value of plant and machinery rose in consonance with the growth of the industry, *viz.*, from Rs. 11,09.39 lakhs to Rs. 14,18.06 lakhs during the years under study.

The value of products of the factories in Bombay increased by a little less than 50 per cent from Rs. 24,85.28 lakhs in 1973-74 to Rs. 36,47.04 lakhs per year in the survey of 1975-77. The value of other outputs stood

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.

at Rs. 2,86.89 lakhs per year in 1975-77. The growth of total output of the industry was quite impressive over the years under reference. It went up from Rs. 26,01.47 lakhs to Rs. 39,33.94 lakhs per annum. The depreciation of the concerns was enumerated at Rs. 93.90 lakhs in 1973-74 and at Rs. 1,04.70 lakhs in 1975-77. The value added on manufacture which is an important measure of the efficiency of an industry also showed an impressive rate of growth. The value added increased from Rs. 10,64.73 lakhs in 1973-74 to Rs. 12,99.79 lakhs per annum in the 1975-77 survey period. The factory payments and net income of the factories in Bombay were of the order of Rs. 2,41.69 lakhs and Rs. 10,58.11 lakhs, respectively, per annum as per the survey of 1975-77. The net income of the factories was only a little less than 50 per cent of their capital investment in 1975-77. This means quite high returns on capital investment in the industry. The total emoluments paid by the factories were very much less than their net income. This leads us to the conclusion that the share of returns on capital was very much higher than the share of wages and emoluments.

INDUSTRIAL FASTENERS AND SCREWS

Industrial fasteners comprise a variety of bolts, nuts, rivets, dogspikes, panel pins and wire nails. Machine screws are meant for use in metallic parts. They are highly in demand from the railways, aircraft industry, automobile industry, manufacturers of electric motors, fans, transformers, bicycles, sewing machines and other machinery. Wood screws are used in the making of furniture and cabinetware, boxes and frames and in the building industry. Threaded fasteners made of steel are widely used for several purposes.

Industrial fasteners and screws, although they may appear very simple products today, were imported totally from Great Britain, West Germany, Belgium, Denmark, Netherlands, Austria, Italy and Japan. It may be surprising that these products were imported even upto 1961. The indutry originated mainly in the Punjab, the first factory of wood screws in undivided India being started at Karachi in 1932.[1] The first factory of machine screws was started in 1941 at Amritsar. The industry came to be located mainly in the Punjab where the indigenous machine building industry was already developing, although the principal source of supply of steel wire, was situated at Jamshedpur. Railways and the defence equipment industry encouraged the initial growth of this industry during the Second World War.

The history of this industry in Bombay is traceable to 1944 during which year a large unit in the city took up production of wire nails.[2]

[1] *Handbook of Commercial Information*, 1963,
[2] Ibid.

The Guest Keen Williams Limited which was initially incorporated in West Bengal in February 1931, commenced manufacture in the Bhandup plant in Bombay in September 1953.[1] It is now one of the largest manufacturers of high class steel and brass wood screws. This foreign concern has two plants in Bombay which manufacture rivets, screws, stampings, laminations, nuts and bolts. The value of sales of these products is given below[2]:—

Products	Sales (Rs. in crores)	
	1978–79	1979–80
Stampings	7.88	10.50
Laminations, nuts, bolts	18.74	22.57
Rivets, screws etc.	14.72	17.74
Total ..	41.34	50.81

It is establishing a new unit at Pune for substantial expansion of capacity for pressed components and assemblies. Another large-scale concern in Bombay engaged in this industry is the Fit Tight Nuts and Bolts Limited with a plant at Andheri, and another near Porbunder which manufactures nuts, bolts, socked head cap screws and taps gauges. It was established in 1957. Its sales turnover amounted to Rs. 8.29 crores and Rs. 10.65 crores in 1978-79 and 1979-80, respectively.[3] Besides, there are many other concerns and small-scale units in Bombay manufacturing these items.

The industry has flourished after about 1960 and there is a ready demand for its products. While the imports of these products are prohibited, some of the products are exported from Bombay to African and Asian countries.

The principal raw materials comprise annealed wire, mild steel, steel wire and brass wire, which are available indigenously. The consumable stores required by the industry are thread rolling dies, high carbon or alloy steel slitting saws, tungsten carbide wire drawing dies and many other items some of which are imported in a small measure.

LOCKS AND PADLOCKS MANUFACTURING

The modern lock manufacturing industry in India is more than 100 years old. Bombay, Aligarh, Delhi, Calcutta, Madras and Dindigul are some of the traditional centres of manufacture of locks. The organised industry came into being at Aligarh, when a lock making workshop was set up by the Postal Department there in 1860. The manufacture of lever locks was began at Dindigul about the same time. An organised padlock

[1] *Kothari's Investor's Encyclopaedia.*
[2] *A State-wise Picture of Large Scale Industrial Activity*, 1981.
[3] Ibid.

factory was established in Calcutta for the first time at the beginning of the present century.

The pioneer in the locks and padlock manufacturing industry in Bombay was however the Godrej and Boyce Co. which established a unit in Bombay manufacturing brass and steel lever type locks, in 1926. The Godrej and Boyce have their plants at Lalbaug and Vikhroli and are accredited to manufacture locks, padlocks, security locks and night latches. They also manufacture a variety of safes and safety cupboards. There are many other companies manufacturing safes, safety cupboards and locks and safety latches in Bombay at present. A number of small-scale factories under government assistance have joined the industry in recent years.

The principal raw materials required by the industry are mild steel, galvanised mild steel wire, cast brass, brass sheets, phosphor bronze wire, etc. Some of the products of the industry are now exported to Sri Lanka, Kenya, Nigeria and some countries in the middle East.[1]

BALL AND ROLLER BEARINGS INDUSTRY

Ball and roller bearings in various sizes and specifications are essential for moving parts of various types of machinery, electric fans and in traction machinery. On account of the high degree of skill required for the manufacture of ball and roller bearings, it has been necessary to seek technological collaboration with foreign companies, and also to secure some types of special steels and raw material components. Prior to 1950 there was absolutely no production of ball and roller bearings in India. The entire quantity required was imported from West Germany, the U.K., Austria, Switzerland, Sweden, Italy, Japan, U.S.A. and U.S.S.R. The New Haven Steel Ball Corporation of Bombay started manufacturing steel balls since November 1951.[2] The installed capacity of this unit was 5 lakh steel balls per annum at the beginning of the Second Five-Year Plan. No other new unit was started in India upto 1956, and the demand was met by increasing and diversifying the production of the unit at Bombay, while imports were also permitted.

The manufacture of steel balls was undertaken subsequently by another unit in Bombay, and the requirements of balls for the bicycle industry amounting to 3 millions in number were met by these sources. The electric fans industry accounted for nearly 60 per cent of the requirements of ball bearings during the Second Plan. The tremendous growth of factories producing agricultural machinery, automobiles, textile machinery, electrical equipment, machine tools, diesel engines, aircrafts, defence

[1] *Handbook of Commercial Information*, 1963.
[2] Ibid., p. 90.

equipments and pumps during the post-planning period increased the demand for ball and roller bearings.

The most important imported raw material used in the manufacture of ball bearings and steel balls is high carbon chromium steel bars and wire. Other raw materials are now available indigenously. They comprise brass strips and rods, mild steel for rivets, sleeves and nuts.

The industry had to face foreign competition which matter was referred to the Tariff Board, and then to the Tariff Commission. The Government of India accepting the recommendations of the commission granted tariff protection to the industry in the mid-fifties, which was continued for some years.

Ball bearings and steel balls of some specifications are also exported in small quantity from Bombay.

DOMESTIC UTENSILS

Production of domestic utensils of brass, copper and bell metal is a traditional industry carried on by skilled workers working in cottage units, for generations. Some of the items of brass and bronzeware produced by these cottage units are used as decorative articles, and thus belong to the category of artistic handicrafts.

Famous centres of production in Uttar Pradesh and Gujarat date back to the early middle age, while other centres in Maharashtra and Bengal could be traced to the 18th century. Fabrication of utensils by mechanical process is, however, of comparatively recent origin in the country. The first mechanised unit is known to have been started in Bombay city in 1907. Most of the mechanised units in the large and small-scale sectors were set up in the third decade of the present century.[1]

The hereditary artisans working in the cottage units generally turn out their products by the traditional handbeating method with small equipment and tools. A major proportion of the production of utensils in Bombay is in the small-scale sector. Generally scrap metal including worn out and discarded utensils is melted for the casting operation in the small units. The methods of pressing and spinning for fabrication of utensils are generally adopted in the organised sector of the industry.

According to a survey undertaken by the Maharashtra Small Industries Service Institute during 1955-57, there were 36 small-scale units manufacturing utensils in Maharashtra, while there were ten large-scale units producing domestic utensils in the State.[2] The domestic utensils industry is comparatively smaller in Bombay. Separate statistics for this industry in Bombay are not available. The essential raw materials for the

[1] *Handbook of Commercial Information*, p. 171.
[2] Ibid., p. 172.

manufacture of domestic utensils are aluminium circles, copper, zinc unwrought, stainless steel sheets, German silver scrap, tin ingot/scrap and nickel silver. The industry has to depend partly on imported raw materials as the supply of non-ferrous metals in the country is very limited. With the growth of the re-rolling mills in the country indigenous re-rolled circular sheets of metals have, however, become available to the fabrication of utensils.

OIL PRESSURE LAMPS INDUSTRY

This is a small industry in Bombay producing oil pressure lamps and hurricane lamps. In 1960-61, there were five units in Bombay out of the total of ten units in India. The production of the units increased steadily since 1954. With the restrictions on imports and the growing demand for the lamps, the industry could make a considerable headway. Besides the medium large units, there are quite a few small units manufacturing oil pressure lamps.

All the materials required for the industry are produced indigenously, and there has been a considerable improvement in the quality of lamps manufactured. The Indian Railways are important users of oil lamps. The industry was granted tariff protection from 1951 to 1957.[1]

BASIC METALS AND ALLOYS INDUSTRY

The basic metals and alloys industry is one of the most important industries of Bombay. The industry has a long history in the city which dates back to 1857 in which year the Byculla Iron Works and Metal Mart was established by Mr. N. C. Richardson. This pioneering enterprise had a factory on Parel road with branch works on Nesbit road, Mazagaon. The enterprise had to face many difficulties in the matter of supply of fuel, suitable appliances and skilled labour which were practically non-existent at that time. Prior to the establishment of this organised plant, an Indian foreman employed in the Gun Carriage Factory was credited to be the pioneer of the iron foundry in Bombay.

In 1909, Messrs. Richardson and Cruddas, Bombay, owned one of the largest engineering works in India affording employment to 2,000 persons. The firm had two workshops, each containing foundries capable of dealing with the heaviest casting required in trade, pattern-shops, smith-shops, fitting and machine-shops and a large structural steel boiler department. The Richardson and Cruddas turned out steel and other work for the Indian Railways, and roof trusses of various designs and style for Government Offices. It had business transactions with all parts of India, Burma, East Africa and the Strait Settlement. It also manufactured sanitary appliances.

[1] *Kothari's Investor's Encyclopaedia.*

Bombay in 1909 contained 15 foundries and metal works. They provided employment to about 5,841 operatives.

The information about them is furnished below as per S. M. Edwardes' *Gazetteer of Bombay City and Island,* 1909 :—

Name	Operatives employed	Name	Operatives employed
Byculla Iron Works ..	1,160	A. K. Patel and Co. ..	178
Byculla Iron Works Branch ..	400	Garbeile and Co. ..	N.A.
Carnac Iron Works ..	628	P. & O. Company's Iron Works	886
Defence Iron Works ..	1,005	Napier Foundry ..	200
Dock Iron Works ..	100	Marsland, Price and Co. ..	445
Empress Iron and Brass Works	100	Geo. Gahagan and Co. Bombay Foundry.	350
Tarachand Masani and Co. ..	120		
D. M. Daruwalla ..	54	Iron Works ..	215

The other metal, lock, cutlery and tin works were :—

Name	Nature of Work	Number of hands employed
Godrej Boyce and Co. ..	Blacksmith, cutlery and safe making ..	240
Art Metal Works ..	Iron gates, railing and brass work ..	50
Anant Shivaji Desai Works ..	Aluminium, German silver and other metals stamped into household utensils.	100
Asiatic Petroleum Oil Works ..	Tin works	353
Burma Oil Works ..	Tin works	290
Standard Oil Works ..	Tin works	177

The basic metals and alloys industry in Bombay as classified under the Annual Survey of Industries comprised 294 registered factories which formed 44.55 per cent of the factories in this industry in Maharashtra State. Bombay ranks the first in the districts in Maharashtra as regards all the aspects of this industry, namely, number of factories, invested capital, employment, inputs, output, value added on manufacture, net income of factories, etc. The capital investment in this industry, as per the A.S.I. of 1975-77, was to the tune of Rs. 90,80 lakhs or 32.39 per cent of the capital investment in the industry in Maharashtra. The industry provided employment to 29,663 persons in Bombay which formed 45.73 per cent of the employment in Maharashtra. The output of the Bombay metals and alloys industry was worth Rs. 2,18,01 lakhs which constituted 43.44 per cent of the output of the industry in Maharashtra. The value added on manufacture by the industry in Bombay was

enumerated at Rs. 42,44 lakhs which formed 47.35 per cent of the industry in Maharashtra. This analysis brings home the conclusion that a little less than half the basic metals and alloys industry in Maharashtra State is localised in Greater Bombay, and the city is the nerve centre of the industry in the State.

The statistics of the basic metals and alloys industry, as per the Annual Survey of Industries, are available for two sectors, *viz.* (i) iron and steel industries and (ii) foundries for casting and forging iron and steel. The statistical data for the basic metals and alloys industry and its two sectors, as referred to above, as per the Annual Survey of Industries in 1973-74 and 1975-77 periods are furnished in the following table. The data enables us to analyse the structure of this important industry of Bombay.

TABLE No. 13

BASIC METALS AND ALLOYS INDUSTRY, GREATER BOMBAY

(Figs. of Rs. in lakhs)

Item	Basic metals and alloys industry		Iron and Steel industry		Foundries for casting and forging iron and steel	
	1973-74	1975-77	1973-74	1975-77	1973-74	1975-77
1. Number of estimated factories.	296	294	32	31	179	161
2. Fixed capital (Rs.) ..	27,12.66	34,72.63	4,39.82	5,79.59	18,48.13	19,63.15
3. Working capital (Rs.) ..	27,75.73	31,09.16	5,47.37	2,72.83	13,71.83	16,56.65
4. Capital investment (Rs.)	65,48.71	90,80.46	11,52.36	12,24.21	40,56.33	49,98.69
5. Outstanding loans (Rs.)	70,02.87	67,95.35	9,97.02	9,51.22	50,02.60	39,73.36
6. Man-days worked ..	N.A.	87,89,204	N.A.	8,50,524	N.A.	56,04,056
7. All workers ..	22,600	22,194	3,685	2,106	14,365	14,349
8. All employees ..	29,787	29,663	4,652	2,960	19,003	18,828
9. Wages to workers (Rs.)	13,15.43	14,48.89	1,72.49	1,07.38	9,40.67	9,74.22
10. Total emoluments (Rs.)	18,89.42	24,95.75	2,86.98	2,00.67	12,89.57	16,28.54
11. Fuel consumed (Rs.) ..	19,38.26	10,65.00	74.74	1,90.13	17,66.71	6,06.30
12. Material consumed (Rs.)	1,09,73.22	1,42,97.77	21,84.50	19,32.77	50,68.19	62,09.53
13. Other inputs (Rs.) ..	N.A.	18,11.15	N.A.	3,12.32	N.A.	9,04.78
14. Total inputs (Rs.) ..	1,34,12.69	1,71,74.51	23,94.55	24,35.22	70,54.88	77,20.61
15. Plant and machinery (Rs.)	31,85.52	46,80.46	4,51.93	6,93.79	19,96.92	25,89.66
16. Products (Rs.) ..	1,57,67.62	1,96,78.75	27,46.05	24,41.94	86,91.23	1,00,28.51
17. Other output (Rs.) ..	N.A.	21,21.81	N.A.	4,59.01	N.A.	5,89.29
18. Total output (Rs.) ..	1,69,56.13	2,18,00.56	28,67.58	29,00.95	93,54.70	1,06,17.80
19. Value added (Rs.) ..	32,56.37	42,44.19	4,23.03	4,06.72	21,21.68	26,88.22
20. Factory payments (Rs.)	N.A.	10,99.22	N.A.	1,56.47	N.A.	5,84.72
21. Net income (Rs.) ..	N.A.	31,44.97	N.A.	2,50.25	N.A.	21,03.50

It may be useful to give a micro-economic level account of the industry in Bombay by furnishing a few details about some enterprises in this industry. It is however cautioned that the account although attempted to be comprehensive is by no means complete or even thorough. It is particularly so because of data constraints. The Richardson and Cruddas, the earliest iron works and metal mart in Bombay was established in 1857 at Byculla. In 1909, it was credited to be one of the largest engineering works employing about 2,000 persons. It was converted into a public limited company in 1949, and was taken over by the Government of India in 1972. It is now managed as a public sector undertaking since then. It has a subsidiary plant at Nagpur, and produces steel structures for bridges, transmission line towers, general industrial plant and equipment, sugar mill plant and machinery, railway points and crossings, sluice gates and hydrants and castings. It has an installed capacity to produce 25,800 tonnes of structurals and 3,600 tonnes of C.I. castings. The Mukund Iron and Steel Works with a factory at Kurla and another at Kalwa (Thane) is a large-scale manufacturer of the following products:—

Products[1]	Installed capacity (Thousand tonnes)	Sales in 1979-80 (Rs. crores)
Iron and Steel	212.4	66.06
Steel castings	12	
E.O.T. cranes	2	
Steel structurals	1.8	

The Kamani Metals and Alloys incorporated in 1945 has a large plant at Kurla which produces non-ferrous metals and alloys strips. It refines and manufactures all kinds of non-ferrous metals. It has an installed capacity to produce 25,530 tonnes of metal and alloy strips per annum, the sales in 1979-80 amounting to Rs. 10.98 crores. The company has sister concerns in Kurla which are engaged in engineering industry. The Nathani Steel Pvt. Ltd. has a factory at Vidyavihar which produces steel profiles, iron and steel scraps, sheet metal and machinery.

The Bombay Metal and Alloys Mfg. Pvt. Ltd. was established in 1943. It manufactures non-ferrous ingots, castings, pressure die castings, cast iron, cast steel and non-ferrous parts for railway rolling stock. It has an engineering department and foundry at Mazagaon and smelting works at Thane. The Devidayal Metal Industries established in 1951 has a factory at Bhandup which produces lamp caps and other metal products.

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.

The Indian Standard Metal Company incorporated in 1937 has a factory near Byculla which produces gun metal, bronze, brass, bearing metals, aluminium, zinc and lead alloys, type metals, master alloys, solders and other non-ferrous alloys. It also produces many types of castings, brass and copper forgings etc. The Crown Aluminium Works at Sewri manufactures aluminium utensils and other articles. The Metallica Works Limited, Kandivli, was established in 1942. It produces alloys of various categories, die casting alloys, solders, fluxes and various kinds of castings.

The Khandelwal Metal and Engineering Works at Powai is also a large manufacturer in this industry. The National Steel Works founded in 1940 at Lahore was shifted to Bombay in 1947. The re-rolling department of this unit is engaged in re-rolling steel bars.

The Indian Smelting and Refining Co. is one of the old units incorporated in 1932. It has a plant at Bhandup and another one at Pokhran (Thane). It is engaged in the manufacture of all kinds of non-ferrous alloys and castings, commercial quality (hot rolled) brass and copper sheets, industrial quality (cold rolled) brass and copper sheets, sheets and coils. Its sales were of the order of Rs. 17.54 crores in 1977-78 inclusive of the Pokhran plant. Another large-scale company established in the thirties, 1938, was the Indian Metal Company. It produces all kinds of non-ferrous alloys as well as pressure die-castings in zinc base and aluminium base alloys. Since 1953 the company has been working on the development of speroidal graphite cast iron-castings and is now on commercial production. It also produces stainless steel heat resisting and other alloy steel castings.[1]

NON-FERROUS METALS

The non-ferrous metals industry is of recent origin. It was only during the Second World War that the industry came into being in the country. The production of metals by mining and smelting started in India in the first decade of the present century and made considerable progress during the Second War. The basic non-ferrous metal industry consists of virgin metals, alloys and semi-manufactures. The Indian Smelting and Refining Company (1932) was a pioneer in this field. The industry grew considerably during the Second World War. Its new development was particularly marked during the planning period in the case of electric wire, insulated wire, copper rods, aluminium sheets and alloys.

Reclamation of metals and alloys from scrap, which is known as the secondary metal industry constitutes an important part. It was developed considerably during the World War II, and at present there are many firms in Bombay engaged in it.

[1] *Bombay Chamber of Commerce Directory.*

Considerable progress has been made in recent years in fabrication and castings of non-ferrous metals. In regard to aluminium particularly, industrial alloys have become increasingly popular. Copper and brass sheets are highly in demand for the production of utensils, electrical goods, electrical appliances, boilers of various kinds, pipes and tubes required for various industrial and consumer uses. Like-wise lead pipes and tubes have also been produced in large quantities for the manufacture of non-ferrous castings for various industrial purposes. The industry therefore grew greatly in importance.

Zinc is an important metal, mainly used in alloys in the production of brass, in galvanising steel sheets and wires and in the manufacture of pigments. There is a smelting factory in Bombay, which is mainly fed by imports from Bolivia. It has an installed capacity of 700 tonnes, but the actual production is less due to difficulties of imports.

Virgin aluminium is not produced in Bombay. But there are many units producing aluminium articles for domestic and industrial uses. There are many units engaged in rolling sheets and circles in Bombay. Due to the paucity of virgin aluminium these units are working very much below their capacity.

NON-METALLIC MINERAL PRODUCTS

The non-metallic mineral products industry is conceived to cover a wide range of manufacturing, such as, structural clay products, glass and glasswares, chinaware and porcelain articles, cement, lime and plaster, structural stone goods, stoneware, stone dressing and crushing, asbestos cement and other cement products, slates, abrasive graphite products, mineral wool, silica products, etc. Although a majority of these articles are being produced as handicrafts in Bombay from old times, they were brought under the fold of registered factories during the last about 60 years.

The first noteworthy pottery was opened in 1877 at Naigaum. There were about 20 potteries in the north of the Island in 1909. The J.J. School of Arts pottery was regarded to possess a high order of merit. The Bombay Brick and Tile manufactory at Sewri made very good tiles at the beginning of this century. The brick and tile industry provided employment to 800 operatives, while the lime kilns to 420 operatives in 1901. Marble carving provided employment to 850 souls in 1901, while stone-carving was carried on in the form of architectural ornamentation on a large scale in Bombay.[1] These industries were however not covered under the Factories Act.

With the growth of Bombay, the industry underwent a process of rapid development during the course of this century. The fast developing

[1] For details refer earlier pages, Industrial Development prior to First World War.

construction industry provided a stimulus to the increase in production of non-metallic mineral products in general. The Digvijay Cement Company established a cement factory at Sewri in 1944. This is a very important unit as it provides an essential product. The Asbestos Cement Company is another important company which founded a factory at Mulund in 1934. The account of these and other concerns is given in following pages.

The statistics for the various segments of the non-matallic mineral products industry in Bombay as per the Annual Survey of Industries of 1973-74 are given below :—

Industry	No. of Units	Employment	Output (in lakhs of rupees)
Structural clay products	39	4229	3,05.40
Glass and glass products	36	7074	17,61.52
China-ware and porcelain-ware	2	227	24.20
Cement, lime and plaster	2	312	5,60.27
Structural stone goods, stone dressing and crushing.	96	1970	3,25.18
Asbestos cement, and other cement products.	5	3142	13,96.22
Slate products, abrasive, graphite products, mineral wool, silica products, etc.	25	1974	3,20.82

The structure of the non-metallic products industry in Bombay which is inclusive of all the manufacturing segments mentioned above can be studied from the statistics in the following table. The statistics are based on the Annual Survey of Industries in 1973-74 and 1975-77. They reveal annual averages during the respective survey periods. No particular comments on the same are given.

TABLE No. 14

NON-METALLIC MINERAL PRODUCTS

(Figs. of Rs. in lakhs)

Item	1973-74	1975-77
1. No. of estimated factories	207	225
2. Fixed capital (Rs.)	12,38.94	12,72.70
3. Working capital (Rs.)	12,86.37	9,15.17
4. Capital investment (Rs.)	29,72.05	26,89.54

TABLE No. 14—*contd.*

(Figs. of Rs. in lakhs)

	Item	1973-74	1975-77
5.	Outstanding loans (Rs.)	14,95.68	15,75.78
6.	Man-days worked	N.A.	43,90,985
7.	All workers	15,128	12,171
8.	All employees	18,928	14,998
9.	Wages to workers (Rs.)	5,85.17	5,19.57
10.	Total emoluments (Rs.)	8,56.74	9,35.99
11.	Fuel consumed (Rs.)	3,45.67	6,72.34
12.	Material consumed (Rs.)	23,93.16	26,36.56
13.	Other inputs (Rs.)	N.A.	5,18.93
14.	Total inputs (Rs.)	29,93.78	38,27.81
15.	Plant and machinery (Rs.)	17,58.18	17,90.74
16.	Value of products (Rs.)	46,09.44	49,25.20
17.	Value of other output (Rs.) ..	N.A.	3,94.72
18.	Total output (Rs.)	46,93.65	53,19.92
19.	Depreciation (Rs.)	1,56.87	1,52.49
20.	Value added on manufacture ..	15,42.99	13,39.62
21.	Factory payments (Rs.)	N.A.	2,33.39
22.	Net income (Rs.)	N.A.	11,06.23

GLASS INDUSTRY

The glass industry occupies an important position in the economy. Besides supplying a wide range of products for daily use and of artistic appeal, a large number of industries particularly chemicals and pharmaceuticals, distillery and brewery, electric lamps, automobiles, building, and preserved food, are dependent on glass and glass goods. Scientific research, analytical and strategic operations are also dependent on the industry for glassware and apparatuses. Glass is also used for the building up of houses, such as glass bricks, tiles and window panels.

Glass manufacturing was started on modern lines in India with the establishment of a bottle making factory at Jhelum in 1892.

The outbreak of World War I gave a tremendous fillip to the rapid development of this industry. The industry experienced short-lived prosperity during the War period. The industry was hit hard during

1933-39 following the devaluation of the Japanese Yen. The industry clamoured for protection in 1937, upon which the matter was referred to the Tariff Board.

The outbreak of the Second World War once again provided an impetus to the industry by way of stoppage of imports and heavy demand for glass-ware by the defence services.

The industry now manufactures a variety of products such as sheet glass, blown and pressed-ware, bangles and other articles. In addition to the organised factories there are several small units in Bombay.

The information about a few units in Bombay is given below.

The Borosil Glass Works, established in 1962, has a factory at Marol in Bombay. It manufactures scientific and laboratory glass-ware, process piping and plant in glass, industrial and lighting products, pharmaceutical tubing, ampoules, vials and consumer-ware. It has financial and technical collaboration with an American concern. The sales turnover of this company was as high as Rs. 7.72 crores in 1979-80. The Vallabh Glass Works manufactures processed glass and many glass products in Bombay. The Empire Industries, a very old concern founded in 1900, manufactures vitrum glass, besides many other products in its factory at Vikhroli. The Vazir Glass Works at Andheri is a producer of glass vials and bottles for pharmaceuticals, and borosilicate neutral glass.* The Bharat Glass factory at Chembur is another producer of glass-ware.

This review of the industry although attempted to be exhaustive is by no means complete.

ASBESTOS CEMENT AND CEMENT TILES

There has been a phenomenal growth in the building and construction activity in Bombay since the end of the Second World War. The growth of Bombay as the commercial metropolis of India after Independence and multiplication in the population of the city gave a fillip to the growth of the construction industry. This has had a definite impact on the rise and growth of the manufacture of cement tiles, asbestos cement and other cement products in the city. The increasing demand for cement tiles as an alternative to cement flooring during the last about 30 years has also contributed to the expansion in this industry.

As per the Annual Survey of Industries there were five registered factories manufacturing asbestos cement and other cement products in 1973-74 which provided employment to 3,142 persons including 2,284 workers.

* *Bombay Chamber of Commerce Directory*, and *A State-wise Picture of Large Scale Industrial Activity*, 1981.

The Asbestos Cement Ltd. is one of the leading firms in India manufacturing asbestos cement products. Besides catering to the demand of the civilian population, the firm supplies asbestos cement products to the defence forces of India. It is therefore regarded as a defence-oriented industry.

As per the A.S.I. statistics for 1973-74, the capital investment in the five registered factories in Bombay amounted to Rs. 9,53,47,300, while the fixed capital was Rs. 4,47,59,100 and working capital Rs. 7,46,83,900. The value of plant and machinery was Rs. 5,52,02,000 while the raw material utilisation was worth Rs. 6,16,17,300 and fuel and power consumption amounting to Rs. 45,60,600. The total emoluments to employees were to the tune of Rs. 2,94,00,700 including Rs. 2,04,05,200 by way of wages to workers. The total value of inputs was Rs. 7,32,04,600, while the output was worth Rs. 1,39,62,290 of the value added on manufacture being Rs. 6,13,73,000. The value of finished products was Rs. 13,89,15,100, while that of semi-finished products was Rs. 7,08,000. The Cement Tiles Manufacturers' Association, which is a registered organisation reported 21 member manufacturers of cement tiles in Bombay, besides 29 other factories, in 1977. Of these 50 factories engaged in tile manufacturing, quite a many are not registered under the Factories Act. On an average each factory employs about 20 workers, and the total employment in them is estimated at 1,000. Though cement tile making is not a capital intensive industry, the capital investment in it is estimated at Rs. 400 lakhs. A worker is estimated to produce 300 tiles per day on an average.

In accordance with the demand for variegated and colourful tiles, the manufacturers produce beautiful mosaic as well as chequered tiles in different colours. Generally the tiles are in three sizes, *viz.*, $8'' \times 8''$, $10'' \times 10''$ and $12'' \times 12''$. There is no dirth of demand for tiles in Bombay, and it is noteworthy that good quality tiles are also exported to countries in the Middle East and Gulf areas. The approximate value of exports may be around Rs. 50 lakhs per year.

Of the raw materials required for cement tiles, grey portland and white silvicrete cement is procured from indigenous manufacturers of cement. Dolomite powder and chips are supplied by producers in the country. Some of the colouring agents are required to be imported though others are available locally.

The workers in many of the factories are organised by trade unions of local significance many of which are affiliated to different central trade unions.

The Asbestos Cement Ltd. by virtue of its integration and assured demand for its products, appears to be comparatively free from many problems which the other factories in the industry are required to face.

The other factories suffer from the lack of modernisation of machinery which is still imported at a very high price. They are also handicapped due to insufficient and erratic supply of grey cement and due to fluctuations in demand which lead many uneconomic units to close down. Restrictions on credit by banks and unhealthy price competition among manufacturers lead to uncertainty and production of sub-standard products. Cement tiles manufacturers are organised by the Cement Tiles Manufacturers Association, established in 1962. It aims at promotion of co-operation and exchange of technical know-how and also at solving problems faced by the members.

The Asbestos Cement Limited, incorporated in 1934, has a factory at Mulund. It has an installed capacity to produce 50,000 tonnes of asbestos cement products per annum, the sales turnover being Rs. 6.26 crores in 1979-80. The Nitco Tiles Co. manufactures mosaic tiles, its sales being worth Rs. 5.50 crores in 1977-78.*

The Bombay Potteries and Tiles was established in 1933, and has two factories at Kurla and Mazagaon at present. It manufactures a wide range of porcelain ware, ceramics, glazed wall tiles, sanitary ware, special refractories and many other articles.

Though Bombay by her very nature of being a thickly populated city is not a congenial place for cement industry, there is a large-scale unit which manufactures cement. The Digvijay Cement Company, established in 1944 has a plant at Sewri which has an installed capacity to produce 2 lakh tonnes of cement, the actual production in a recent year being 1.36 lakh tonnes. Its sales were computed at Rs. 20.27 crores in 1978-79 and Rs. 17.46 crores in 1979-80.† In view of the acute shortage of cement and the multiplying demand from the construction industry, the cement production by the Digvijay Cement Company has assumed tremendous importance.

MANUFACTURE OF FOOD PRODUCTS

Scientific methods of processing and preservation of food products came to be developed only about a hundred years ago. The industry gained momentum mainly after the outbreak of the First World War, when supply of large quantities of bread, vegetables, fruits, meat and canned food had to be arranged for the armed forces. Further impetus to the industry was provided by the Second World War. The wide assortment of the canned products and their easy transportability have created a fast increasing demand for preserved foods. Thus, an industry which had its beginnings in the scarcity conditions of war, has now assumed a considerable importance. Later, the increase in sophistication in tastes,

* *A State-wise Picture of Large Scale Industrial Activity*, 1981.

† Ibid.

growing urbanization, higher standard of living and the constraints of city life led to the increase in demand for food products which are more varied, exotic tasting and incorporating sophisticated flavours. Other sociological changes, such as the desire to spend less time in kitchen, the increased value placed on leizure, the hotelling habit and the weakening of family ties created increased demand for food products.

The industry has an important role to play in the national development programme which comprises food supply, economic improvement, and improved nutritional standard of the people. This is mainly a demand-oriented industry, and awaits a very bright future in view of the growing urbanization, industrialization and rising standard of living.

The history of the industry in Bombay can be traced to the first decade of the nineteenth century when one of the best known bakeries was established in Old Hanuman Lane. In 1901 there were about 350 sweet-meat makers in Bombay. But since then, with the large growth of the city and of its cosmopolitan character the number of food product makers, sweetmeat makers, etc. has greatly gone up. According to an inquiry by the Bombay University School of Economics (1960) there were 658 manufacturers of sweetmeats and *farsan* in Bombay, which provided employment to 2,230 persons. Rationing of food articles during the war and post-war periods had a great impact on all the food products as some of them were used as substitutes for cereal products. After derationing, sweetmeats and bread had a volume of demand lower than what it obtained during the rationing period.

In the unorganised sector there are a large number of establishments comprising flour mills, bakeries, production of edible oils, sweetmeat makers, biscuits and confectionery products, fish curing, canning of fruits and vegetables, breakfast food and dairy products. They provide employment to a considerable number of persons and cater to the needs of society and play an important role in the socio-economic life of the city.

But the scope of this narrative needs to be restricted to the food products industry in the factory sector for which reliable data are available.

The food products industry is here conceived to comprise basic food industries and processed food industries registered under the Factories Act which are engaged in flour milling, production of edible oils, biscuits, bakery products, confectionery, vanaspati, meat and fish processing, canning fruits and vegetables, breakfast food, dairy products, infant foods, malts and malt products, etc.

Table No. 1 gives the number of working factories and employment in reporting factories in the category of food industries except beverages from 1923 to 1957. The statistics for the few years with a quinquennial

break-up are furnished below to illustrate the growth of this industry in Bombay during the period of 35 years :—

Year	No. of working factories	Employment in reporting factories	Percentage of employment to total factory employment
1	2	3	4
1923 ..	16	1021	0.5
1925 ..	29	1489	0.7
1930 ..	29	1957	1.1
1935 ..	33	2192	1.1
1940 ..	90	4410	1.9
1945 ..	99	9115	2.3
1950 ..	184	8033	2.1
1955 ..	233	8798	2.1
1957 ..	275	9997	2.4

These statistics illustrate that there was a hundred per cent growth in the industry in regard to number of factories, employment and percentage employment over the period of 12 years from 1923 to 1935. But the growth of the industry was tremendous from 1935 to 1940 in all respects. Actually the pace of growth was started from 1938, in which year the number of factories increased to 82 and employment to 3822. Throughout the period of war the industry continued to grow, reaching the climax in 1945. This can certainly be attributed to the boom created by the demand on account of the war and the enforcement of rationing of many food articles. The war efforts of the Government demanded considerable supplies of processed foods. The enforcement of rationing increased the demand for food products as substitutes for cereals while shortages of many articles forced the consumers to buy processed foods, There was a decline in the number of factories in 1946. But this was. a short-lived aberration as the factories began to multiply from 1947, and reached the 184 mark in 1950. It is however noteworthy that although the number of factories increased from 1945 to 1950 by about 85 per cent, there was an actual decline in employment as also in the percentage share of this industry in total factory employment. This can be attributed to the post-war stagnation, a higher degree of mechanisation with labour saving devices, and the settlement of displaced persons from Pakistan who entered this industry and started many small scale units. The same trend of growth was visible till 1955. The industry however reached a climax in 1957 with 275 factories employing 9,997 persons who formed 2.4 per cent of total factory employment in Bombay. Thus, over a period of 35 years from 1923 to 1957 the number of factories increased seventeen times, while employment therein rose only nine times. This growth of

the industry must be rated as spectacular by any standards. As per Census of 1961 foodstuffs manufacturing industry provided employment to 24,112 persons in Bombay.

The Annual Survey of Industries (1975-77) has grouped together manufacture of sugar, hydrogenated oils, Vanaspati ghee, edible oils and fats, such as mustard oil, groudnut oil, *til* oil and many other food processing factories though the statistics for all of them are not available separately. In respect of this industry as in the case of others, Greater Bombay ranked the first in Maharashtra State as regards the value added on manufacture by this industry. As per the A.S.I. (1975-77), the value added on manufacture by the food products industry was Rs. 19,94 lakhs per annum which formed 23.59 per cent of the total value for Maharashtra.

The selected characteristics of the industry can be analysed by the following statistics based on the Annual Survey of Industries (1975-77). There were 220 factories manufacturing food products in Bombay of which thirty were engaged in manufacture of edible oils and fats. The factories in the food products industry provided employment to 19,234 persons of whom 12,801 were workers. The share of edible oil mills in total employment was 2,941. The fixed capital in the industry as a whole was Rs. 17,93.47 lakhs, the working capital being Rs. 13,96.52 lakhs. The capital investment of the factories was of the rank of Rs. 38,86.77 lakhs, while their outstanding loans stood at Rs. 18,20.05 lakhs. The idemand for the products of this industry is ever increasing with increasing population. But the element of consumer resistance, particularly from the middle class, is quite obvious in the wake of soaring prices.

According to the A.S.I. (1975-77), the factories worked for 61,46,767 man-days per annum; the share of oil-mills in this was 9,20,615. The total emoluments paid to employees amounted to Rs. 11,41.59 lakhs while wages paid to workers were only Rs. 6,09.76 lakhs per annum. It means that emoluments to employees belonging to non-working class were quite enormous. A part of it must also be accounted for by bonus and other benefits to employees. The inputs in the food products industry, as per the A.S.I., could be analysed as under :—

(Rs. in lakhs)

Item	Total food products	Oil mills
Fuel consumption	6,57.88	2,51.65
Material consumed	2,41,37.18	88,90.05
Other inputs	35,50.83	26,51.75
Total inputs	2,83,45.89	1,17,93.45

The value of plant and machinery of the food products factories was to the tune of Rs. 23,50.02 lakhs. The output and value added on manufacture by the factories engaged in food products and oils, as per the A.S.I., were as under :—

(Rs. in lakhs)

Item	Total food products	Oil mills
Value of products	2,72,76.12	96,59.35
Value of other output	32,92.61	25,54.04
Total output	3,05,68.73	1,22,13.39
Value added	19,94.11	3,78.32

It is evident from the statistics of inputs and output that the ratio is not high as in the case of many other industries. The share of material consumed in total inputs is quite high in this industry. The proportion of value of products to total output is also quite high as the bye-products of the industry are small in value. Being mainly a processing industry, the ratio of value added on manufacture to total output is considerably small.

The net income of the factories in this industry as a whole was Rs. 16,72.76 lakhs of which the share of oil mills was Rs. 2,30.78 lakhs.

Some of the segments of the food products industry are within the purview of price control measures by Government. These segments include flour mills, large-scale bakeries, infant foods and hydrogenated oils and vanaspati products. It may be useful to furnish some information about some of the segments of the food products industries in the case of which qualitative data are available.

MEAT INDUSTRY

The establishment of the Modern Abattoir by the Bombay Municipal Corporation at Deonar in April 1973 is by far the most important landmark in the history of food industry in Bombay. It is probably the first of its kind and has registered appreciable success in processing wholesome meat, both for local consumption as well as for export. It has satisfied the necessity of providing good quality and hygienic meat to the citizens of Bombay who had to put up with unwholesome meat from unhygienic slaughter houses of the worst type. This modern slaughter house, under vigilance of the Municipal authorities, relieved the citizens of illicit slaughter of animals in residential localities.

Besides production of wholesome meat, bye-products from slaughtered animals are put to gainful utilisation fetching the maximum returns.

Enzyme preparations which were formerly imported in bulk, are now available from the processes in the Deonar Abattoir. Some of the bye-products are utilised in manufacture of life saving drugs and as many as a dozen national and international companies are utilising the bye-products with advantage.

CONFECTIONERY

The confectionery industry is of recent origin. The demand for its products has widened and deepened in scope in the post-Independence era. With increased urbanization and rising income confectioneries are highly in demand. The industry found a congenial home in Bombay though its growth in the country is limited. The concentration of this industry in Bombay is mainly due to the demand for its products, particularly from higher strata of society. Though the *per capita* consumption of confectioneries in the country is only 28 grams, the corresponding rate in Bombay is much higher.

The production of confectionery in the organised sector is much smaller than in the small industry or cottage sector. The Parle Biscuit Co., the Britannia Biscuits Co., and the Shangrila Food Products are the largest producers of confectionery in Bombay. Their products consist of biscuits, toffees, chocolates, cocoa, cocoa butter, food drinks and other cocoa-based products.

The Cadbury India was incorporated in 1948 as a private limited company under the name Cadbury Fry (India) Ltd. It was changed to Cadbury India (Pvt.) Ltd. in 1977 and was converted into a public limited company. It has its factories at Panchapakhadi and also at Induri village in Pune district. Its sale of confectioneries was worth Rs. 22,45.53 lakhs and Rs. 16,65.97 lakhs in 1978 and 1977, respectively. The Shangrila Food Products founded in 1947 in Bombay has a biscuit factory at Bhandup. Its authorised capital is Rs. 50 lakhs, while issued capital is Rs. 20 lakhs.[1]

This industry has been going through a difficult period marked with ups and downs since 1968 when excise duty was imposed for the first time. Meanwhile the Government has reserved the confectionery industry for the small sector under its policy of encouraging the latter so as to provide greater employment opportunities. " The capacity utilisation of the units in this industry, set up at heavy investment, has been approximately 48 per cent only. As a result, employment has not increased and the working of the units has been highly uneconomical due to low capacity utilisation." [2]

[1] *Kothari's Economic and Industrial Guide*, 1976.
[2] Ibid.

BAKERIES

There is a very large number of bakeries in Bombay, the first best known bakery being established by a Goanese in the first decade of the last century. The industry received great patronage from the European community and Parsis in Bombay, who by virtue of their food habits were the main consumers of bread. Though no statistical data is available it can broadly be said that the bakery industry was very prosperous during the World War II. The war time spate in demand was attributable to military supplies, paucity of wheat due to rationing of foodgrains and social hazards. The industry had a slight set-back after flight of the Europeans after Independence. But this was off-set within a short time by increasing demand on account of a rapid pace of industrialisation and urbanisation of Bombay. With short-lived aberrations of upheavals due to shortage of supplies of flour and other equipment the industry appears to be developing at a rapid pace.

The etablishment of the Modern Bakeries Ltd. as a registered company by the Government of India on October 1, 1965 was the most important landmark in the history of modern and scientific production of bread. This public sector enterprise was established with an authorised capital of Rs. one crore with the object of setting up a chain of bakeries to develop bakery industry on sound and scientific lines and for improving the dietary standard of people. It has set up many bakery units with automatic equipment for production of fortified and enriched bread in cities like Bombay, Delhi, Calcutta, Hyderabad, Kanpur, Madras, Bangalore, and Cochin. Besides funds from the Government of India, this enterprise received gift aid from Governments of Australia and Canada under the Colombo Plan.

The daily production capacity of the Modern Bakery Plant at Goregaon in Bombay is 60,000 S. L. of 400 grams. The sales of this unit were worth about Rs. 1,40 lakhs in 1979-80.*

The Britannia Industries is another large-scale manufacturer of bakery products in Bombay. It is the main competitor of the Modern Bakeries and matches the latter in almost all respects.

OTHER FOOD PRODUCTS

The Mahila Grihodyoga Lijjat Papad, though of recent origin is a unique manufacturer of *papad*. This organisation of ladies has earned a name in the food industries in Bombay for supply of *papad* of good and wholesome quality. The sales of the organisation were to the tune of Rs. 5 crores in 1979-80 which appears to be quite spectacular, particularly

* *A State-wise Picture of Large Scale Industrial Activity*, 1981.

in view of the nature of the industry. It provides employment to a large number of women workers.

There is a large number of flour mills, some of them registered under the Factories Act, while a large proportion of them are governed under the Shops and Establishments Act, 1948. Separate statistical data are not available about this most essential food industry.

The Wallace Flour Mills with two factories in Bombay, one at Mazagaon and another at Tardeo is one of the best known flour mills not only in Bombay but also in Western India. It is engaged in processing of wheat into flour, rava, etc. Its production in Bombay amounted to about 79,197 tonnes, while the value of sales was to the tune of Rs. 11.59 crores in 1978-79.[1]

The fruits and vegetable preservation industry has a good scope both in internal as well as in external markets. There is an ever increasing demand for these products from the areas in Gulf countries where daily consignments are sent by air. There are many kinds of units in food preservation and manufacture of products of corns, chocolates, dairy products such as salted butter, ghee etc. There is an assured demand for all such products. Some of the manufacturers of such products in Bombay are as under: Mahindra Food Products, James Smith & Co., Corn Products Private Ltd., Herbertson Ltd., Dr. Writers Chocolates & Canning Co., Polson Ltd., Britannia Biscuits, Khemka & Co., and Lyka Laboratories.

The equipment for this industry is manufactured mainly by the Larsen & Toubro Ltd. and the Vulcan Laval Ltd. both in Bombay.

VEGETABLE OILS AND VANASPATI

The principal vegetable oils extracted in Bombay are groundnut oil, rape seed oil, mustard oil, sesamum oil, coconut oil and many other non-edible oils. The domestic consumption of all the edible oils has increased tremendously with the rising population and standard of living of the people. The consumption of vegetable oils in industries has also considerably increased since the Second World War. The development of soap, paints and varnishes industries has stimulated the consumption of non-edible oils also. Castor oil consumption as a lubricant has also registered a considerable expansion.

There are a few oil mills at present in Bombay. A bulk quantity of oil is also brought from oil mills elsewhere.

Vanaspati is the Indian counterpart of hydrogenated oil products, like margarine, which are used as alternatives to animal fats. The vanaspati industry is the second largest food processing industry in India.[2]

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.
[2] *Kothari's Investor's Encyclopaedia.*

The history of this industry in Europe dates back to the nineteenth century when a rapid increase in population in Europe increased the demand for butter. The demand out-stripped production of butter. Vanaspati was first imported in India from Holland, after World War I, due to insufficient supplies and the soaring prices of ghee. In 1938, about 23,000 tonnes of vanaspati was imported. The first vanaspati factory was established in India in 1930 with a small installed capacity. In 1935, two factories produced vanaspati in India. During the Second World War, the demand for vanaspati increased tremendously which gave a fillip to the development of the industry.[1]

The Tata Oil Mills, founded in 1917, is one of the oldest oil mills in Bombay. It has a factory at Sewri which manufactures vegetable oils, vanaspati, refined cooking oils, oil-cakes, toilet and washing soaps, toilet articles, industrial perfumes, glycerine, detergents, and allied products. The Sewri Plant comprises an oil mill, oil refinery and hydrogenation plant, solvent extraction unit, a glycerine unit, a washing and toilet soap plant, a bonded laboratory and other units. The company has two other factories, one each at Ernakulam and Calcutta.

The Indian Vegetable Products established in 1929 manufactures vanaspati, margarine, refined oil, industrial hard oils and organic chemicals in its factory at Gholapdeo in Bombay. The Ahmed Oomerbhoy Ltd., established in 1930, manufactures all kinds of edible oils, refined oils, vanaspati as well as margarine in its factory at Byculla.

The Bombay Oil Industries Private Ltd., established in 1948, is a manufacturer of vegetable oils, refined oils and fatty acids.

The Hindustan Lever, established in 1956, is another big name in the vanaspati industry, manufacturing soaps, detergents, edible fats, toilet preparations and a wide range of nutrition products. The Vegetable Vitamin Foods Company with a factory at Sion, produces vanaspati, refined oils, other edible oils and groundnut oil for industrial use. The Western India Vegetable Products Ltd. was founded in Bombay in 1945 to manufacture vanaspati, refined oils, edible oils, soaps, wax etc. It commenced its manufacturing activity in 1948.

The Godrej and Boyce is another reputed concern manufacturing vanaspati, refined oils, soaps and detergents in Bombay.

The above survey of the industry covers most of the reputed concerns in Bombay, although it is not complete.

BEVERAGES AND TOBACCO PRODUCTS

This group of industry is conceived to comprise the manufacture of beverages, tobacco, cigars, cigarettes, cheroot and cigarette tobacco.

[1] Ibid.

As per the Annual Survey of Industries, there were 19 registered factories including 8 units manufacturing cigars, cigarettes, cheroot and cigarette tobacco in 1973-74, in Bombay. Their number declined to 17 including 7 cigarette factories in 1975-77. The industry provided employment to 4,668 persons in 1973-74 and 4,522 in 1975-77. Of this, employment in the cigarette factories was, 3,557 in 1973-74 and 3,263 in 1975-77. The position of capital in the total industry group and the cigarette factories was as under:—

(Rs. in lakhs)

Item	Total industry		Cigarette factories	
	1973-74	1975-77	1973-74	1975-77
Fixed capital ..	5,63.71	6,29.64	3,95.72	4,41.61
Working capital ..	16,22.89	14,86.99	15,19.33	14,23.85
Capital investment ..	23,89.13	25,07.50	20,79.83	21,69.80
Outstanding loans ..	10,62.21	8,69.09	10,45.77	7,25.21

The factories in the total industry worked for 1,342,175 man-days while the cigarette factories for 953,001 man-days per annum in 1975-77 survey period. The total costs incurred were computed as under:—

(Rs. in lakhs)

Item	Total industry		Cigarette factories	
	1973-74	1975-77	1973-74	1975-77
Total emoluments ..	4,56.57	5,29.99	3,72.33	4,19.93
Fuel consumed	37.82	71.56	21.80	37.20
Material consumed ..	31,99.98	31,03.64	27,45.89	26,52.01
Other inputs	N.A.	8,56.76	N.A	7,56.66
Total inputs	38,36.49	40,31.95	33,38.32	34,45.87

The value of plant and machinery was of the order of Rs. 7,42.86 lakhs in 1973-74 and Rs. 10,04.31 lakhs in 1975-77 for the total industry. The value of plant and machinery of the cigarette factories was Rs. 6,16.83 lakhs and Rs. 7,96.18 lakhs in the years under study.

The structure of output as per the surveys can be studied by the following figures :—

(Rs. in lakhs)

Item	Total industry		Cigarette factories	
	1973-74	1975-77	1973-74	1975-77
Value of products.. ..	49,50.07	48,67.20	42,73.38	40,89.95
Value of other output ..	N A.	3,20.46	N.A.	2,80.41
Total output	49,65.98	51,87.66	42,88.63	43,70.36
Value added on manufacture ..	10,52.12	10,64.99	8,88.54	8,54.74

The factory payments of the beverages and cigarette factories taken together were computed at Rs. 1,31.47 lakhs and of cigarette factories at above Rs. 1,06.77 lakhs, while the net income of the total industry was computed at Rs. 9,33.52 lakhs and of the cigarette factories at Rs. 7,47.97 lakhs in 1975-77 survey.

The above statistical analysis brings home some plausible conclusions. There were no sure signs of decline in the beverages and tobacco industry in Bombay from 1973-74 to 1975-77. In fact the invested capital, emoluments paid, total inputs and total output of the industry showed a rise. The same conclusion holds good for the cigarette factories. The ratio of total output to total inputs shows the high rate of profitability of this industry. The value added on manufacture which is about 25 per cent of the total inputs shows the satisfactory position of the entire industry in Bombay. The proportion of net income to invested capital in the total industry shows the high rate of returns on investment. This rate is still higher in the case of the cigarette factories.

Though beverages were not unknown to Bombay in old days, they acquired an increasing demand from the beginning of this century. The demand has always been on the increase with growing urbanization, industrialisation and rise in money incomes. The Parle Products Pvt. Ltd. with a factory at Vile Parle was incorporated in 1950. It is a leading concern manufacturing aerated waters, of different kinds, biscuits and toffees. Its sales turnover was to the tune of Rs. 1,05 crores in 1978-79.[1]

The Imperial Tobacco Company, a foreign company, is the oldest in Bombay manufacturing cigarettes, cigars and smoking tobacco. Incorporated in 1910 it has a factory at Parel, besides five others in other States of India. The Golden Tobacco Co. was the next to be established in Bombay in 1930. It has a factory at Vile Parle, besides another at Baroda. It is by far the biggest manufacturer of cigarettes, pipe tobaccos and cigars, in Bombay. Its total sales turnover was Rs. 66.79 crores in 1978-79 and Rs. 76.09 crores in 1979-80.[2] The Gamadia Factories Ltd., established in 1931 has a cigarette manufacturing unit at Mahalaxmi under the firm name of Masters Tobacco Co. (India). The Godfrey Phillips India is another large-scale manufacturer of cigarettes, cigars, and pipe tobaccos with a factory at Chakala (Andheri East). This foreign concern was incorporated in 1936 and has a subsidiary concern at Gaziabad in Uttar Pradesh. The turnover of its sales amounted to Rs. 70.04 crores in 1979-80.

[1] *A State-wise Picture of Large Scale Industrial Activity*, 1981.

[2] Ibid.

LEATHER AND LEATHER PRODUCTS INDUSTRY

It is one of the oldest cottage industries of Bombay which flourished mainly because of the natural advantage offered by large cattle population in the hinterland. As mentioned earlier the first leather tannery and factory worked by machinery was established in Bombay in 1887 by Sir Adamji Peerbhoy at Dharavi. The leather industry provided employment to 5,500 workers in 1901. The growth of the industry was accelerated under the impetus of the two World Wars. Though there are many factories working with varying degrees of mechanisation, the bulk of the footwear, especially the indigenous varieties, is produced with handicraft techniques by craftsmen financed by other businessmen.

As per the 1961 Census the leather and leather products industry in Greater Bombay provided employment to 12,945 persons. This might be inclusive of factory employment as also persons in the household industry. In the nature of things the employment in the household leather products industry is higher than that in factories.

In Bombay, there are 48 registered factories engaged in the manufacture of leather and leather products which provide employment to 3,327 persons, of which 2,807 are workers. The growing mechanisation in the industry which requires less labour has limited the scope for employment. Besides, the scope for development of the industry in Bombay is extremely limited due to paucity of space, pollution aspect of the industry and restrictions by municipal authorities. Goats and sheep skins and cattle hides are obtained from the Deonar slaughter house as also from parts of Maharashtra and Gujarat to Bombay. Finished and semi-finished leather is obtained by processing hides and skins. The oldest known tanning process in India called, 'East India Tanning' has been in vogue for the past two centuries. About 15 to 20 years ago the wet-blue chrome process was introduced. In this process bichromate and other chemicals are used to produce semi-tanned leather. The semi-finished leather is processed exquisitely so as to manufacture footwear, wallet, leather garments, handbags, and fur products.

Bombay is the main centre for industrial leather. The share of Bombay in the exports of finished leather and quality products to the East European Countries, North America, Japan, Sweden, Yugoslavia, the U.K. and many Pacific countries is quite large.[1]

The Carona Sahu & Co. established in 1953 is one of the largest manufacturers of leather-wear not only in Bombay but also in India. It has a modern factory at Jogeshwari which manufactures leather, rubber and

[1] India exports around 8 per cent of the world exports of finished leather and goods. The country has immense potentialities for increasing exports, particularly to East Germany and Romania.

canvas shoes, and a wide range of P.V.C. footwear. Its authorised and subscribed capital are Rs. 50 lakhs and Rs. 48 lakhs, respectively. The analysis of its working is given below:—

	1979	1978 [1]
	(Rs. in lakhs)	
Total Current Assets	774.05	675.27
Total Assets	845.06	742.72
Total Current Liabilities	460.60	395.03
Total Liabilities and Net Worth ..	445.06	742.72
Sales	17,36.57	14,64.18

The Bhor Industries (1943), with factories on Veer Savarkar Road and at Borivli though not a leather manufacturing unit as such, is a well-known enterprise manufacturing foam leather, furnishing foam cloth, flooring and sheeting. It exports these goods to Western countries and South East Asia.

As per the Annual Survey of Industries (1975-77), the 48 factories in Bombay provided employment to 3,327 persons of whom 2,807 were workers. The fixed capital of these factories was Rs. 1,10,22,000, while the working capital amounted to Rs. 1,51,61,000. The capital investment in these concerns was of the order of Rs. 5,43,42,000. Their outstanding loans were as high as Rs. 3,38,65,000. The factories worked for 9,56,491 man-days per annum during the survey period. The leather industry in Bombay paid Rs. 1,30,52,000 by way of wages to workers, while the emoluments to all employees in the industry amounted to Rs. 1,83,23,000.

The leather and leather products factories consumed raw material worth Rs. 8,63,50,000, the value of fuel consumption being Rs. 23,23,000. The total value of inputs in the factories was Rs. 13,07,01,000. The estimated value of plant and machinery of the factories was Rs. 1,43,50,000.

The value of total output of the industry in Bombay was as high as Rs. 16,18,81,000 which comprised the value of products, Rs. 12,46,24,000 and the value of other output, Rs. 3,72,57,000 per year. After allowing a depreciation of Rs. 14,51,000, the net value added on manufacture of the industry was Rs. 2,97,30,000 per annum. The net annual income of the factories was of the order of Rs. 2,48,21,000.

The above statistics lead us to some interesting conclusions. The leather, and leather products industry is less capital intensive but more labour intensive. The proportion of fixed capital to capital investment is quite modest. It is also noteworthy that though this is a labour

[1] *Kothari's Economic and Industrial Guide*, 1980-81.

intensive industry, its employment potential appears to be very modest. This might be because of the fact that more and more jobs in the factories are now performed by mechanised processes which require less labour. The share of wages and emoluments in total inputs of the factories is quite low. The fuel requirements of the industry are not very high. The proportions of value added on manufacture and net income of the factories to the value of total output are very high. This brings home the fact that the industry pays handsome returns on capital.

Besides the registered factories enumerated by the Annual Survey, there are hundreds of establishments working with varying degrees of mechanisation. There are also hundreds of artisans making indigenous varieties of footwear who work on a household industry pattern. Although some of these small units are managed by the artisans on a proprietary basis, quite a large number of them are managed by entrepreneurs who supply the artisans the necessary material and get the articles manufactured on piece wages. Most of these units are indeed very small, judged either from employment or capital criterion, and almost all of them work on traditional techniques except perhaps for the sewing and cutting machines. " Of the total non-factory units, two thirds engage less than 3 employees ..... Three-quarters of the total (non-factory units) have their total production capital below Rs. 500."*

The demand for the footwear is not markedly elastic. P. V. C. footwear are however replacing leather footwear on an increasing scale. P. V. C. footwear are cheaper than pure leather goods. The use of what is known as industrial leather has come increasingly in vogue during the last about 15 years. There appears to be a tendency towards standardisation of products, though there are obvious limitations in this respect. Shoe-making industry affords a large scope for use of mechanical devices in large-scale sector than *chappal* making. The scope of mechanical techniques in *chappal* making is far more limited in view of the very small amount of leather required, and the very wide variety of straps that form the upper part of the product. " In fact that is why perhaps no powerful competition in producing *chappals* on a large scale, as in shoes, has so far arisen and the handicraft technique occupies a virtual monopoly in this field. It is however possible to use some of the improved techniques used in shoe manufacture in preparing the sole."

" The large-scale producers are by far the deadliest competitors of the small shoe manufacturer. If the scope of standardisation in the shoe branch of footwear is comparatively limited as compared to other industries, it is a more limited in *chappal*. The conditions here do not favour only large-scale production."[1]

* Prof. Lakdawala and Prof. Sandesara, *Small Industry in a Big City*, 1960.

[1] Prof. Lakdawala and Prof. Sandesara, op. cit.

WOOD PRODUCTS, FURNITURE AND FIXTURE

Furniture manufacturing is a very old industry of Bombay. With the establishment of rule of the British and the settlement of Europeans there was an increasing demand for wood furniture. Besides Europeans, the Parsis and the elite among Gujaratis, Muslims and Hindus were the customers of wood furniture. During those days, however, it was not an organised industry; a few proprietors used to employ some carpenters for making various articles. The wood was procured from Central Provinces, Malabar coast as well as Burma. The Burma teak as also the Malabar teak were chosen by the connoissure. These varieties are however not available at present as imports from Burma are banned, and the Malabar teak has almost been extinct. The good quality furniture of the present day is made of what is known as C. P. teak and that brought from the Nasik forests.

Furniture of old days was of a heavier type with a lot of decorative designs. The shift, at present, has been towards dainty furniture, with less of teak contents and more of inferior wood covered with veneer and formica lamination. The emphasis now is on upholstery and furnishing cloth.

The Kamdar Private Limited, incorporated in 1934, has a big furniture factory at Chinchpokli. It enjoys a reputation for quality of the products. The N. R. Jasani Ltd. manufactures wooden and upholstered furniture as well as office and household furniture in its factory at Jogeshwari (West). There are many other factories, many of them small-scale or cottage units.

As per the Annual Survey of Industries there were 95 registered factories employing 3,441 persons in 1973-74 and 108 factories employing 2,909 persons in 1975-77. The position of capital of the factories was as under :—

(Rs. in lakhs)

Item	1973-74	1975-77
Fixed capital	3,71.43	1,31.92
Working capital	2,04.39	2,67.23
Capital invested	6,76.64	4,15.43
Outstanding loans	3,80.14	2,66.02

There appears to be a decline in the capital of the factories in Bombay in spite of the rise in their number. They worked for 822,182 man-days per annum in 1975-77.

The cost structure of the Bombay factories was as under. The figures reveal annual averages in the survey periods :—

(Rs. in lakhs)

Item	1973-74	1975-77
Total emoluments	1,29.59	1,96.44
Fuel consumption	28.57	22.65
Material consumed	39.91	5,60.45
Other inputs	N.A.	1,14.91
Total inputs	4,89.11	6,98.01

The value of output is detailed below:—

(Rs. in lakhs)

Item	1973-74	1975-77
Value of products	6,89.34	8,90.75
Value of other output	N.A.	85.15
Total output	7,13.64	9,75.90
Depreciation	20.78	13.29
Value added on manufacture	2,03.74	2,64.60

The net income of the factories in Bombay was Rs. 2,23.93 lakhs per annum during 1975-77.

The above statistics lead us to some conclusions about the industry in Bombay. The ratio of output to total inputs shows the profitability in the industry. The value added on manufacture was almost 35 per cent of the total inputs. This also shows the profitability in the industry. The value added on manufacture was about 65 per cent of the invested capital. It is suggestive of the high returns on capital in the wood products and furniture industry.

Besides furniture making in the city, a huge quantity of articles are brought for sale from Ulhasnagar and adjoining areas. The Ulhasnagar products are cheaper than those made in Bombay although they are generally inferior in quality. The wooden furniture industry faces competition from articles of steel, particularly of the folding variety. Though local carpenters are the largest in number, the Punjabi carpenters have lately entered the Bombay furniture industry.

PAPER AND PAPER BOARD INDUSTRY

The paper and paper board industry is a consumer goods industry. Though the production and use of paper was not unknown in India even prior to the advent of the machine made paper, the history of the industry

in India is traceable to the year 1870, when the first modern paper mill was established on the banks of the Hooghly in Calcutta. By 1900 there were eight paper mills in the country producing over 20 thousand tons of paper per annum. The manufacture of paper increased from 20 thousand tons in 1900 to 84,100 tons in 1940 and to 11,583 tons in 1950.[1] Indian paper was confronted with foreign competition till the First World War. However the Swadeshi Movement gave a fillip to the industry along with many indigenous industries. The condition of the industry improved during the war as the supplies of paper were curtailed due to the war. The cessation of the war initiated a slump in the industry, which was mainly on account of foreign competition. On the recommendations of the Tariff Board the Government of India granted protection to certain classes of paper in 1925. This acted as a stimulus and the industry picked up the pace of growth. Except for a short-lived aberration in 1930 the industry registered a rising trend in the subsequent period. The protection was extended from time to time, which showered benefits on the industry. The Second World War provided a further impetus to the industry as the supplies of foreign paper were curtailed.

There are four paper mills in Bombay city and suburbs. The varieties of paper manufactured by the mills in Bombay include all kinds of writing and printing paper except newsprint, and straw boards and other boards. Excellent facilities of a port, availability of water and existence of well established markets, banks and commercial houses, technocrats and skilled labour have contributed to the establishment of this industry, though the main raw materials are not locally available. The Bombay paper industry enjoys the advantages of ready availability of chemicals and dye-stuffs locally.

The history of paper industry in Bombay is traceable to 1862 when the Girgaum Paper Mill was established. It was also the oldest paper mill in India. Its production was of the order of 250 tons in 1908.[2] The subsequent history or fate of the factory is however not known.

The paper products, and printing and publishing industry of Bombay is composed of 646 factories which provided employment to about 26,166 persons. The value of output of the factories is about Rs. 1,15,11.60 lakhs, the value added on manufacture being Rs. 30,28.58 lakhs. This industry is conceived to cover manufacture of paper and paper boards; containers and boxes of paper; printing and publishing of newspapers, periodicals, books, journals, maps, preparation of envelopes, picture post-cards, embossing and allied activities. Of the 646 factories, about 13 are engaged in printing and publishing of newspapers, and 87 in printing and publishing of periodicals, books, journals, maps, etc. The

[1] N. S. R. Shastri, "A Statistical Study of India's Industrial Development "(Article).
[2] *Gazetteer of Bombay City and Island*, Vol. I, 1909, p. 502.

detailed statistics of the industry in Bombay, as per the Annual Survey of Industries in 1973-74 and 1975-77 are given below. The figures reveal annual averages.

TABLE No. 15

PAPER AND PAPER PRODUCTS, AND PRINTING, PUBLISHING AND ALLIED INDUSTRIES

(Rs. in lakhs)

Item	1973-74	1975-77
1. No. of estimated factories	588	646
2. Fixed capital	24,64.43	27,66.14
3. Working capital	16,22.89	19,77.61
4. Capital investment	44,05.48	46,09.33
5. Outstanding loans ..	27,33.47	29,38.49
6. Man-days worked	N. A.	77,90,154
7. All workers	24,640	19,654
8. All employees	32,198	26,166
9. Wages to workers	9,75.87	10,20.48
10. Total emoluments	15,35.98	16,99.19
11. Fuel consumed	1,21.28	2,12.70
12. Material consumed	57,85.24	66,42.45
13. Other inputs	N.A.	13,34.63
14. Total inputs	66,66.88	81,89.78
15. Plant and machinery ..	43,94.11	36,94.33
16. Value of products	80,22.04	92,81.39
17. Value of other output	N.A.	23,30.21
18. Total output	96,63.70	1,15,11.60
19. Depreciation	2,23.33	2,93.24
20. Value added on manufacture ..	27,73.48	30,28.58
21. Factory payments	N.A.	6,17.43
22. Net income	....	24,11.14

PRINTING PRESSES

The first Printing Press appears to have been established in Bombay in 1674 in consequence of a letter despatched by the Deputy Governor and Council of Bombay to the Court of Directors in 1670. Thereupon the Court of Directors established a press in 1674 with an imported printing press, type and paper, and a printer sent from England.* From that date upto 1778 no information is available regarding printing presses

* *Bombay Gazette*, 1st July 1906, India Office Records.

in Bombay. In 1778 a Parsi appears to have performed English printing. The following 20 years witnessed the introduction of journalism and the establishment of regular printing presses, for example, the *Bombay Gazette* press founded by Douglas Nicholson and the *Bombay Courier* press which commenced work in 1790.

There was a tremendous difficulty in getting skilled and educated compositors. At the close of the 18th century presses and newspapers were subjected to various restrictions, one of them being that no article could be published without prior permission of the Chief Secretary to Government. But several of these disabilities were removed during the Governorship of Mountstuart Elphinstone, and by 1835 the presses had become practically free from official interference.

As regards native printing presses the earliest appears to have been the *Bombay Samachar* press, opened in 1812, which published the first edition of the *Bombay Samachar* in 1822.[1] About 1830 Government opened a press for their own official publications which was afterwards handed over to the Byculla Education Society, in 1848, which had a monopoly for Government printing work.

By 1867 Bombay contained about 25 printing presses, the chief among which were the presses owned by the *Times of India*, *Bombay Gazette*, Byculla Education Society, Ganpat Krishnaji, Imperial, Oriental, *Indu Prakash*, *Jam-e-Jamshed*, *Akbar-i-Soudagar* and *Darpan*. By 1878, the number of presses had increased to 53, including the Government Central Press which was established in 1872. Of these, 48 were under Indian proprietorship. Of the latter, 29 issued newspapers and periodicals and the remainder performed job of printing of various kinds. In 1909 there were 120 printing presses in the city.

During the course of this century, printing presses have multiplied in number, and have equipped themselves with modern machinery. There is considerable improvement in the mode of printing, and diversification in the range of printing from stationery items to the most sophisticated lithographic printing and art printing. The newspapers in Bombay have mammoth printing presses. For example, the presses of the Times of India Group of newspapers, the Indian Express Group, the Free Press Journal Group, the Bombay Samachar, the Mumbai Sakal, the Blitz and many others in the field have mammoth machinery. They employ a considerable number of skilled workers and trained supervisory personnel.

The Government Central Press, now located on the Marine Drive, is one of the biggest printing organisations in Bombay. Originally established

[1] Gujarati type was moulded in Bombay for the first time in 1797 by a Parsi printer working in *Bombay Courier* Press.

for the printing of Government orders and secret documents, the Press now prints all Government reports, notifications, Acts and rules, the weekly Government Gazette, Budget publications, many Government periodicals, publicity literatures, folders and posters, etc., State lottery tickets, prestigious volumes for Education Department, Maharashtra State Board for Literature and Culture. The Government Central Press, Bombay, is now one of the prestigious institutions of the Government of Maharashtra which caters to the needs of various Government Departments of the State. The Printing Press is equipped with modern Letterpress and Offset machines with sophisticated equipments such as photocomposition machines, photopolymer plate-making unit. There are 1,935 employees working in the Press. This Press has bagged several National Awards for Excellence in Printing in competition with the private presses. The Joint Management Council and various Shop Floor Councils are actively functioning in the organisation.

The Bennett Coleman and Company, established in 1838, has a huge press in its building near the Victoria Terminus Railway Station. It is engaged in printing and publishing of newspapers and periodicals including a year book. It publishes the following publications and periodicals from Bombay : *The Times of India*, *the Maharashtra Times*, *the Navbharat Times*, *the Economic Times*, *the Evening News of India*, *the Illustrated Weekly of India*, *Dharmayug*, *Femina*, *Filmfare*, *Madhuri*, *Dinaman*, *Youth Times*, *Parag*, *Sarika*, *Science Today*, *Indrajal Comics* and *Times of India Directory and Year Book*.

The Indian Express Newspapers (Bombay) Limited was established in 1936 and has a huge press in its own building at Nariman Point. It prints and publishes a chain of newspapers and periodicals mentioned below : *The Indian Express*, *the Lokasatta*, *the Financial Express*, *the Sunday Standard* and *the Screen*. *The Free Press Journal*, *the Navashakti*, *the Free Press Bulletin* and *Janmabhoomi* are published by the Free Press Group in Bombay. It has also a big press which was damaged in a recent fire. The *Mumbai Samachar*, one of the oldest vernacular newspapers, enjoys a wide patronage among Gujarati readers, and is equipped with a big press. The *Blitz* which is published in English as well as in many vernacular languages also enjoys a large readership. The company has started a daily under the name *the Daily*.

There are several other printing presses in Bombay which undertake printing of books, magazines, maps, art printing work, etc. Many of them have earned a name as eminent publishing companies.

It may be useful to mention a few of the companies engaged in the paper, paper board and packaging materials industry in Bombay. The Vakil and Sons Private Limited, established in 1928, is one of the large letterpress, offset and silk-screen printers in Bombay. It has two plants in

Bombay which are equipped for composing, processing and plate-making, printing, hot-stamping and embossing. It prints publicity literature, art books, art magazines, books, art calendars, etc. The I.T.C. Limited, established in 1910, has a unit at Parel (5 units outside the State) which is engaged in printing and packaging material. Sai Giridhara Supply Co., established in 1966, has a factory at Wadala which manufactures telex paper rolls, adding and calculating machine rolls and teleprinter reperforator tapes.

Avadhoot Industries (1964) has a factory at Andheri which manufactures paper packaging material and light to heavy duty containers. The Colour Cartons Limited (1948) manufactures at its factory at Bhandup a range of paper based and laminated industrial packaging materials, *e.g.* cartons, boxes, labels, wrappers, catch covers with multi-colour printing by offset and letter press processes.

The Pai Paper and Allied Industries (1957), with two units in Bombay *e.g.*, at Worli and Dhuruwadi, manufactures reperforator parchment tapes for auto telex, computers and data processing machines, teleprinter tapes, telex rolls, paper rolls for industrial and electronic equipment, flexible packaging materials, and consumer products like paper napkins, toilet paper rolls, etc. The Paper Corrugation and Packaging Limited (1969) has a factory at Kandivli which manufactures corrugated boxes, rolls, sheets, heavy-duty shipping containers and other packaging requisites. The R.M.D.C. Press Private Limited (1957) with a factory at Worli manufactures packaging materials, printed cheques for three nationalised banks, and undertakes printing of magazines, books, etc.[1]

The Kores (India), a foreign concern, has plants at Worli and Thane wherein are manufactured carbon papers, duplicating stencils and inks, ribbons and many other stationery articles. The Coates India, another foreign company, incorporated in 1947, owns a factory at Chandivli in Bombay which manufactures printing inks, synthetic resins and stationery articles.

The above survey of some units is by no means complete in the absence of availability of information.

WATCHES AND CLOCKS MANUFACTURING

The clock manufacturing industry in India originated in 1926 during which year the first tower clock was made in India by Dr. H. Parameshwaran.[2] Such clocks have since been set up in public buildings, particularly in South India. Commercial production of clocks in India was however taken up in 1932 by the Indian Clock Manufacturing Co. at Tatanagar.

[1] *Bombay Chamber of Commerce Directory*, 1976.
[2] *Wealth of India, Industrial Products*, Part II.

Later a factory in Bombay city and another in Bhavnagar commenced production of non-striking, 8-day winding, round or rectangular shaped clocks.[1]

Another firm in Bombay, the Favre Leuba Limited, was granted a licence in June 1956 to produce watches in collaboration with a French concern. The annual capacity of this unit at the end of the 5th year of its commencement of production (1961) was 3,10,000 watches. The third unit in Bombay was sanctioned in 1960 with an annual production capacity of 3,00,000 watches in collaboration with a West German firm. The fourth firm manufacturing watches in Bombay was granted production licence in the first year of the Third Plan (1962-63). The annual installed capacity of this firm was 3,00,000 watches.[2]

Bombay has thus provided a congenial home to the watch making industry. Prior to the development of the indigenous industry watches were imported from Switzerland, Great Britain, West Germany and Japan, while clocks were imported from West Germany, Great Britain, France, Italy and Japan.[3]

The raw materials for this delicate industry constitute brass rods, brass strips, stainless steel, special steel strips and rods. Some of the components are made from leaded brass or special leaded nickel. Main spring is made from straight carbon steel and silico manganese steel, and hair springs of phosphor bronze. Special steels and brass for watches and clocks have to be imported. Upto 1961-62, almost all the parts of watches were imported, after which the imported constituents were gradually reduced.

The HES Limited with a factory at Jogeshwari was established in 1946 for the manufacture of alarm time-pieces and level clocks. It has technical collaboration with a foreign firm of Czechoslovakia. The Favre Leuba & Co. is an old dealer in watches and alarm time-pieces established in Bombay about 1850. It has now started manufacturing activity as well.

RARE EARTHS

Rare earths comprise a group of precious elements with a wide variety of uses in industry and science. The Thorium Plant at Trombay produces thorium nitrate, thorium oxide, thorium hydrocarbonate and many other elements which are useful not only in industry but also as fuel for atomic reactors. It is therefore felt necessary to give a brief account of this industry and scientific programme which has also an interesting history.

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[1] *Handbook of Commercial Information*, 1963.
[2] Ibid.
[3] Ibid.

INIDAN RARE EARTHS LIMITED

In the early part of this century large bundles of coir and coconut fibre used to be shipped to Europe from the Western Coastal regions of India. The presence of fine particles of a shining yellowish-brown sand in the bundles aroused the curiosity of scientists, eminent among whom was Mr. Schemberg, a German Chemist. They identified in 1909 that these beach sands contained monazite. The Geological Survey of India which took up the investigation later, established the presence of extensive deposits of monazite in parts of Kerala and Tamil Nadu coastal areas. Geologically, monazite is a constituent of the old crystalline rocks of the Archaean or pre-Cambrian Age (several hundred million years old) in parts of the Nilgiri and adjoining hills of the Western Ghats. With the passage of time, these rocks got disintegrated and the sands were carried to the Arabian sea through water streams. Owing to the peculiar disposition of the underwater sea currents and sand bars existing in the coastal areas, heavier particles of mineral sands like monazite and ilmenite got deposited on the beaches or in shallow waters through a natural process of separation. These deposits are valuable sources of rare earths, a group of elements with a wide variety of uses in industry and science.

During the early period following the discovery, monazite was freely exported. In 1948, when the Government of India set up the Atomic Energy Commission under the Chairmanship of the late Dr. Homi Bhabha, one of the first steps taken by the Commission was to stop the export of monazite and constituted a committee to investigate the possibility of setting up a facility to process the mineral for the production of rare earths on a commercial scale. In August 1950, Indian Rare Earths Limited (IRE) was registered at Bombay as a private limited company jointly owned by Government of India and the then Government of Travancore Cochin State. Later, the State Government's shares were handed over to the Government of India, and the IRE became a full-fledged Central Government Undertaking under the Department of Atomic Energy. The company took up the construction of the Rare Earths Plant in April 1951 at Alwaye in collaboration with a French firm, Societe des Produits Chimiques des Terres Rares (now Rhone Poulene) which provided the necessary process details and technical assistance. The plant was commissioned in the following years. Besides the rare earths plant, in the late fifties and early sixties, when the Atomic Energy Establishment, Trombay (now Bhabha Atomic Research Centre) was in the early stages of development, the company played an important part in the construction of some of the facilities at Trombay.

The IRE employs about 2000 persons at its factories and offices. Another 3000 people work for the contractors in seasonal operations like sand

collection, sand transportation, cargo loading, etc. The Rare Earths Division of the company manages the Rare Earth Plant at Alwaye. Monazite, a phosphate of rare earths and thorium, after it is separated from the other minerals at the sand separation units of the Mineral Division, is sent to this plant, where it is chemically treated and processed to produce a wide range of industrial chemicals. The products are rare earth chloride, rare earths fluoride, rare earths oxide, trisodium phosphate, thorium hydroxide and certain pure compounds of individual rare earths like cerium lanthanum, etc. Except for thorium hydroxide which is sent to the Thorium Plant at Trombay, the other products are marketed by the Rare Earths Division.

THORIUM PLANT

The Thorium Plant was one of the first few facilities built by the IRE for the Department of Atomic Energy at Trombay. The company is operating the plant on behalf of Government since 1955.

The crude hydroxide concentrate produced at the Rare Earths Factory at Alwaye is the feed material for this plant. The end products are thorium nitrate and thorium oxide, besides a few other compounds of thorium and rare earths fluoride.

Thorium products have industrial applications in the gas mantle industry, refractories, polishing compounds, in the manufacture of heat resistant alloys and so on, but the importance of thorium lies in its potential as a fuel for the future breeder reactors.

With the present annual output of about 160 tonnes of thorium nitrate and a few other products of thorium, the company not only meets the entire industrial demands in the country but also exports to countries, such as U.S.A., U.K., Iran, U.A.R., Japan, Turkey, Sri Lanka, Bangla Desh, Pakistan, West Germany and Spain. The main products of the Thorium Plant at Bombay are Thorium Nitrate, Thorium Oxide, and Thorium Hydrocarbonate.

ELECTRICITY GENERATION AND DISTRIBUTION

Electricity played a vital role in the development and modernisation of Bombay to its status as one of the few large cities in the world. Its importance in the development of modern industry in this industrial Metropolis cannot be exaggerated. The history of electricity in Bombay began with the establishment of the Tata Hydro-Electric Power Supply Company in 1910 which started generation, transmission and distribution of electrical energy from its hydro-electric power station at Khopoli. The geographic location of Bombay near hydro-electricity sources lent it an advantage of great magnitude. It is also stated that the Tatas, with a business vision, established the Khopoli station with their eye on the prospective demand from Bombay.

Though the year of introduction of electricity in Bombay is not known, electric lighting appears to have been introduced in the cotton mills in Bombay for the first time in 1893. The Finlay Mill, established in Bombay in 1907, was the first completely electrically driven cotton mill in India. With a few exceptions, Bombay millowners were not inclined to encourage the Tata scheme for hydro-electricity, but preferred to wait and watch the practical results of the electric drive in the local mills. The painstaking efforts of Sir Dorabji Tata bore fruit in the form of the Khopoli project and power was switched on for the Bombay cotton mills on February 8, 1915 by Lord Willingdon, the Governor.

The Khopoli power house was fitted with Turbo-generators and electrical plants of the Western type that had been in successful operation in large hydro-electric power stations in Europe and the United States. Electricity was then generated at a pressure of 5,000 volts and was raised by transformers to 10,000 volts at which pressure the current was conducted to Bombay by high tension transmission wires. The length from generation to receiving station in Bombay is 43 miles. The receiving station in Bombay was located at Parel.[1]

The scheme was found to be so encouraging that the Tatas undertook another hydro-electricity scheme at Andhra Valley, about 12 miles to the north of Lonavala. This scheme was taken up by incorporation of the Andhra Valley Power Supply Company in 1916. It embraced the generation of 60,000 KVA by water power with transmission over 56 miles at 100,000 volts and distribution in bulk to the consumers in Bombay.[2]

In the nature of things there was an ever increasing demand for power in Bombay. This encouraged the Tatas to establish the third hydro-electric power company in 1919, namely, the Tata Power Company with a generation station at Bhira near Bombay. The generation of hydro-electricity in the vicinity of the city was a great boon for it. The pioneering efforts of the Tatas in this field were unmatched in those days in India.

Even with the expansion of the generation capacity of the above power stations, the demand in Bombay was insatiable. It was therefore imperative on the part of the Government to search and strive for additional sources for power. Accordingly the Koyana Hydro-Electricity Project was incorporated. It was followed by a number of other power generation projects, such as, the Tarapur nuclear power project, and thermal power stations at Nashik, Bhusawal, Parli Vaijnath, Koradi, etc.

At present electricity generation and transmission is being done in Bombay by the Tata Hydro-Electric Power Supply Company. This company has generation station at Trombay, besides another at Khopoli. It has its receiving stations at Bombay and surrounding areas. The Tata

[1] S. M. Rutnagur, op. cit.

[2] Ibid.

Power Company also has a generating station at Trombay, besides the one at Bhira. The Andhra Valley Power Supply Company has also a generation station at Trombay and another at Bhivpuri. It has also receiving stations in Bombay and the surrounding areas.

The electricity requirements of Greater Bombay are met by the Tata Hydro-Electric system through three distribution agencies, namely the BEST in the island of Bombay, the Bombay Suburban Electric Supply Company covering areas of the western suburbs and southern parts of eastern suburbs and the Thana Electric Supply Company covering the northern areas of the eastern suburbs.[1] In addition to this, direct supplies are also made from the Tata Hydro-Electric system to consumers with huge load demand like the railways, textile mills and a few other industries.

The supply of power from Tata Hydro-Electric system is met not only from out of their own generation at Khopoli, Andhra Valley, Bhira and Trombay but also from purchases from the Maharashtra State Electricity Board.

In 1970-71 total sales from the Tata system were placed at 5,251 million KWH of which 2,594 million KWH were sold to textiles and other industries. Railways accounted for 322 million KWH while the rest was sold to licencees. The Tata Hydro-Electric system serves an area of about 1,000 sq. miles which extends over the Bombay-Pune region. The actual sales out of this system to Greater Bombay are, however, not precisely known.

Generation of power by the Tata system was estimated at 3,065 million KWH during 1970-71, of which 1,764 million KWH was thermal power.

BOMBAY ELECTRIC SUPPLY AND TRANSPORT UNDERTAKING

The BEST was granted licence for the generation and distribution of electric power in the city of Bombay on 7th June 1905. No sooner the licence was granted than the company established a generating station at Wadi Bunder and commenced electricity supply to the city of Bombay on 11th September 1905. The advent of electricity brought about a great change in the civic life of the city. The company made rapid progress during the first six years. In 1910 it decided to close down the Wadi Bunder Generating Station and build a new one at Kussara Basin Road for which the company took land on lease of 50 years (1st June 1911) from the Bombay Port Trust, where a Steam Station was erected. The commencement of electricity generation by the BEST was followed by the establishment of hydro-electric power generation by the Tatas who were in a position

[1] *See* page 309.

to supply cheap power to the city. The B.E.S. & T. Co., therefore, started purchasing a portion of their requirements of power from Tatas in 1916. On the 11th January 1925, the Steam Generating Station at Kussara Basin was completely closed down as its operation was found uneconomical. The large steel frame structures now occupied by the Distribution Stores are the remnants of the old power house. In 1927, a receiving station was constructed by the side of it to receive the entire power requirements of the B.E.S. & T. Co. Ltd. The company was completely municipalised on 7th August 1947 and now it forms a part and parcel of the Bombay Municipal Corporation.

While reviewing the bulk supply agreement with Messrs. Tatas, it was decided to purchase electrical energy in bulk from Messrs. Tatas at 22,000 volts at their two existing receiving stations at Parel and Dharavi and at the new receiving station at Carnac Bunder, commissioned in 1956. It was also considered desirable that the B.E.S. & T. would lay their own 22,000 volts cables from the main transforming stations of the Tatas to the 22 kV receiving stations of the BEST located at various load centres. This agreement was finalised in 1956.

The following statement gives the statistics of receiving stations, units purchased, units sold etc. by the undertaking during 1947-48 and 1979-80 :—

(Rs. in lakhs)

Particulars	1947-48	1979-80
No. of transforming sub-stations ..	247	1,144
Total capacity of distribution from transformers (in MVA).	99.2	7,15.6
Units purchased from Tatas (in millions) ..	222.4	1,468.0
Units sold (in millions) ..	197.8	1,332.5
No. of consumers (in thousands) ..	108.2	553.8

BOMBAY SUBURBAN ELECTRIC SUPPLY LTD.

The Bombay Suburban Electric Supply Limited, established in 1929, are licensees under the Indian Electricity Act, 1910, for the supply and distribution of electricity in the area from Bandra to Bhayander on the Western Railway, and Chembur, Trombay, Kurla, Ghatkopar and Vikhroli in the eastern suburbs. It covers an area of 368 square kilometres, and serves over four lakh consumers including a large number of factories. This company purchases bulk power from the inter-connected system of Tata Hydro-*cum*-Thermal Generating Stations.[1] Table No. 16 gives information regarding power purchased, sold and revenue earned by the company from 1941 to 1972.

[1] *Bombay Chamber of Commerce Directory*, 1976.

TABLE No. 16

ELECTRICITY PURCHASED AND SOLD AND REVENUE EARNED BY BOMBAY SUBURBAN ELECTRIC SUPPLY COMPANY

Year	K.W.H. purchased	K.W.H. sold to public for					Total	Revenue earned (Rs.)
		Domestic consumption	Combined consumption	Commercial light and power	Industrial power	Public lighting		
1	2	3	4	5	6	7	8	9
1941 ..	6,143,630		2,367,834*		2,391,565	478,514	5,237,913	7,75,616
1946 ..	14,610,613		5,384,080*		6,810,936	446,890	12,641,906	16,64,022
1951 ..	35,961,760		14,965,171*		15,159,393	674,615	30,799,179	35,15,086
1956 ..	70,146,253		25,615,447*		33,231,434	1,624,030	60,470,911	71,33,100
1961 ..	160,007,443	35,809,731		22,603,999	81,291,820	3,040,568	144,823,892	1,44,26,591
1966 ..	367,673,531	83,798,388		34,231,340	2,17,007,313	4,036,072	341,843,924	3,51,86,599
1971 ..	691,360,243	162,030,875		56,651,893	392,203,514	12,256,277	627,929,744	8,44,84,196
1972 ..	799,792,524	187,288,837		62,788,152	464,303,978	12,909,506	732,272,199	9,60,25,781

* Combined consumption is indicated as commercial tariff was not existing.

Source.—Information furnished by the Company.

In 1972, the mileage of Power line of the company was 789 km. H.T. and 892 km. L.T. Its installed capacity was 179,000 kVA (Transformer capacity of 22 kV receiving station) and utilised capacity was 157,600 kVA. The fixed capital of the company was Rs. 17,32,36,060 including building, equipment, machinery etc., while the working capital was worth Rs. 95,31,615. The power supplied by the company for industrial consumption was 464,303,978 units and for household consumption 187,288,837 units. It provided employment to 1,604 persons and paid them Rs. 97,90,297 as wages.

THANA ELECTRIC SUPPLY COMPANY

The Thana Electric Supply Company, which was established in 1927, is engaged in the distribution and supply of electricity in the franchised area covering Powai, Bhandup and Mulund in Bombay, and Thane town and adjoining area in Thane district.[1]

All the above companies have their headquarters in Bombay.

BOMBAY GAS COMPANY

The Bombay Gas Company deserves a mention by virtue of its being one of the oldest plants in Bombay. Established in 1863 it provided town gas and afforded street gas lights in 1866. Located in the heart of the city at Lalbaug it continues to manufacture fuel gas by high temperature carbonisation of coal and gasification of coke and oil. It also processes coal bye-products like coke, coal tar, naphthalene, solvents, tar acids, etc. The company, in the service of the city for about 120 years, distributes fuel gas through a network of pipelines in the Bombay Island.

LABOUR MOVEMENT

The Bombay cotton mills provide a good example of the adaptations of a population to an industrial environment. As one of the oldest examples of the factory system outside Europe and the U.S.A., the mills in the city have given their workforce a long exposure to industrial organisation. During the early sixty years of the mills' existence, the workers had an informal but resilient organisation of their own making. Outsiders were unsuccessful in establishing trade unions. However the millhands were able to launch strikes, maintain their wages at a steady level and give other evidence of effective leadership.[2]

The first textile mill was opened in 1854 (1856 according to some authors). Others followed soon afterwards, and by 1875, the year in which

[1] Ibid.

[2] Richard Newman, *Workers and Unions in Bombay : 1918-1929; A Study of Organisation of Cotton Mills* (Australian National University Monographs on South Asia), 1981, p. 3.

the Bombay Millowners Association was formed, there were 27 mills employing 13,500 workers. Expansion continued until the turn of the century, after which the less capable pioneers sold out. New promoters, like the Wadia and Tata families enlarged their interests by painstaking management and enormous investment. Control became concentrated in a fewer hands, and the industry learnt to live with competition. By the end of the First World War there were about 79 mills, dominated by eight large companies and providing employment to 117,110 workers.

Bombay[1] was the largest cotton market in Asia, and in some years did more business than even Liverpool. The main reservoirs of Bombay labour were the central districts of the Western Deccan, and the Konkan. The workforce had always retained its rural characteristics, while only a small proportion of the migrants lost contact with their rural origin. This had a definite impact on their stimuli to work and organize. Most of the mills lay on the arteries of Parel road and DeLisle road. Other industries were also located around Parel, Chinchpokali, Mazagaon (engineering works), and Sewri (oil installations). The working population itself seems to have been residing around the mill area. Nearly 90 per cent of the workers lived within fifteen minutes walk of their employment in those days. Most of the millowners refused to provide housing to workers. The jobber who formed a link between the workers and management came to occupy an important position, and it was he who had a crucial role in labour relations in those days. "The jobber was the fulcrum of labour organisation in the Bombay Mills. . . On many occasions during the 1920's it is possible to see the jobbers tipping on advantage to and fro between management and labour as they wove their way through the conflicting pressures that built up around them."[2]

Almost one-third of the mill industry was managed by Parsis, particularly Tatas, Wadias and Petits. A small proportion was in the hands of Hindu agents, the largest among them being Thackersey Moolji who managed three mills. Muslims and Jewish influence was confined to Currimbhoy Ebrahim and E. D. Sassoon, respectively. The British share in the industry was small.[3]

The mill surroundings were unhealthy and the working hours long which were reduced to 11 in 1922.

The political movement had also some influence on the labour movement since the second decade of this century. The nationalist leaders began to look at the industrial labour as a recruiting ground for the cause of struggle against the British imperialism. The Royal Commission on

[1] The Cotton Green at Colaba was moved in 1922 to a new exchange laid out on a reclamation between railway and harbour at Sewri.

[2] Richard Newman, op. cit., p. 251.

[3] Ibid., p. 33.

Labour in India, set up in 1929, was a creation of the Labour Party in Britain and a landmark in the history of Indian worker. The ILO of which India was a full member, was another stimulus to reform. The Home Rule Leagues were the first of the post-war movements to bid for labour support. However the millhands impinged upon the non-co-operation movement only twice, once as protest against the arrest of Khilafat leaders in Sept. 1921 (Mohammed Ali and Shaukat Ali) and then in Nov. 1921 when Mahatma Gandhi lighted a bonfire of foreign cloth in a meeting at the Elphinstone mill. S. A. Dange and Nimbkar emerged as the most prominent Bombay communists of the inter-war periods.

However, Richard Newman suggests that the Bombay millhands were hardly touched by nationalist agitations. Those millhands who were drawn into an alliance with Congressmen apparently worked at first from industrial motives rather than from desire to topple British rule. "It is an even grosser distortion to suggest, as some writers have done, that the AITUC was an industrial wing of the Indian National Congress and that its foundation was symptomatic of the spread of nationalism to the working classes. In Bombay at least, the majority of AITUC leaders were either not Congressmen at all, or Congressmen who were far removed from the mainstream of the movement."[1] The political forces however caused changes of attitude within the workforce who became receptive to new ideologies. They also helped a long-term involvement of workers in politics. Price inflation, not Marxism, was the cause of unrest in the immediate post-war period.

It was against this background that the labour movement developed in Bombay. The first body which is generally credited with trade union characteristics was the Kamgar Hitwardhak Sabha founded in 1909 by B. R. Nare, S. K. Bole and H. A. Talcherkar. It was followed by the Social Service League under the able leadership of N. M. Joshi.

Labour movement in Bombay during the pre-Independence period had a distinct character compared to that after Independence. "The movement then was spontaneous, self-reliant, virile and largely free of sectarianism and rivalries which are perhaps its most conspicuous and cancerous features today. The workers then were largely illiterate, relatively new to the industrial culture. Yet, their movement seems to have suffered from no problems of leadership."[2] Though trade union leaders in the pre-Independence period belonged to various political ideologies, there was a common bond of anti-British feeling. The movement was a movement of protest not only against employers, but also against the alien Government. The movement was however devoid of that common bond after Independence. The movement is now guided by different stimuli and forces.

[1] Ibid p. 263.

[2] Bagaram Tulpule, "Foreword", Vasant Gupte, *Labour Movement in Bombay*, p. VII.

The national economy now needs industrial peace keeping in view the interests of workers and consumers. The vested interests and sectarianism of the present day leadership now very often clash with the national interest.

The following account of labour movement therefore aims at a comparatively detailed narrative of the early developments in the field, particularly the early history of unionism, leadership in those days, the strikes in pre-unionisation and post-unionisation days, in Bombay.

HISTORY OF LABOUR MOVEMENT

Although labour was not organised in the true sense in the initial stages of industrialisation, the occurrence of strike was frequent in almost every cotton mill in Bombay. The chief cause was the reduction in wages on the day of payment without any previous intimation to the workers of the contemplated change. One of the oldest strikes reported was in the Swadeshi mills at Kurla in 1887 which was due to the inadequacy of the wage rates in the card and weaving rooms, Besides factory workers, the workmen in other sectors also used this weapon. For example, the butchers in Bombay went on strike in 1866, 1867 and during the communal riots of 1893 and 1898. The strike in three textile mills in Bombay in October 1892 involved about 2,800 workers, who struck work anticipating a wage cut. Probably the biggest strike in the previous century occurred in 1893 which involved about 8,000 workers in the David Sassoon, Alexandra, E. D. Sassoon, Indo-China, Bombay City, Wadia and New Eastern mills. A strike took place in 1897 on the issue of discontinuance of daily payment of wages which had been temporarily introduced during the great plague of 1896-97. The railway workers including Station Masters and Assistant Station Masters struck work on 6th May 1899 due to rejection of their demands by the G.I.P. railway authorities, which included change in hours of duty, wages and non-discrimination between Indian and European employees. This strike lasted for 27 days.

The working people expressed their dissatisfaction through strikes, but they were not organised. The Government had armed itself with plenary powers to suppress workers' refusal to work. The Workmen's Breach of Contract Act of 1859, and the Employers and Workmen's Disputes Act of 1860 were measures in this direction.

The Swadeshi movement and the boycott movement which developed after 1905 under the leadership of patriots like B. G. Tilak, Joseph Baptista, N. C. Kelkar and other luminaries of the time provided a stimulus to the growth of industries as well as the labour movement in Bombay.

It may appear interesting to note that there were a number of strikes between 1905 and 1908 in the textile mills on the issue of introduction of

electric lights in mills, the main objection being the increase in number of working hours (15 hours a day) on account of electric lights. The strike in the Jacob Sassoon mill in January 1906 pressurised the owners to reduce the working hours to 12. Statutory regulation of hours of work came only in 1911.

Although not even elementary trade unions, the only organisations that came across were the Mahomedan Association and the Indian Labour Union. Despite any good organisation the workers used to exercise a certain amount of pressure on the authorities.[1] The dawn of this century witnessed a strike of about 20,000 textile workers in Bombay, against a threatened wage cut in 1901, which was withdrawn after the cut was restored. As per the Annual Factory Reports of the Bombay Presidency there were many sporadic strikes from 1904 to 1912. A strike of considerable dimensions involving many big mills in Bombay took place in the later part of 1904 on account of wages. It involved seven to eight thousand workers for eleven days.

The new Factories Act was enacted in 1911 which brought about, for the first time, regulation of working hours to 12 in textile factories.

The first political strike took place in Bombay in 1908 after the conviction of B. G. Tilak in a sedition case, and was in the nature of a protest against the severe sentence of six years of rigorous imprisonment inflicted upon him. As per the Annual Factory Report nearly all the factories in the City were closed for six days in July 1908 at the time of Tilak's trial. A large part of the work-force in Bombay participated in this protest. The Bombay Postal Union formed in 1907 and the Kamgar Hitwardhak Sabha in 1909 were the forerunners of labour unions in Bombay.

War and Post-War Period : There were some strikes during this period which could be mainly attributed to the inflationary conditions on account of war, wages lagging behind prices and acute economic distress among the workers. The influenza epidemic in 1917-18, which took a toll of many thousands, drove away a large number of workers from the City to the villages. This created scarcity of labour. Another factor was the growing awakening and consciousness among the workers about their rights. The political movement for Home Rule had already started. It was followed later by the mass campaign of Non-co-operation under the able leadership of Mahatma Gandhi. This had profound effects upon the working class which developed a new sense of solidarity and a keen desire to secure improvement in their conditions of life and work. The social and political workers who were prepared to help

[1] Factory Labour Commission,

them in organisation of the movement were also instrumental to the struggle of the working class.[1]

The Bombay textile industry witnessed strikes particularly in 1917 which were short-lived and confined to individual mills. The demand was always for an increase in wages in view of rising prices. The strikes used to end with a full or partial fulfilment of the demand, mainly against the background of rising demand for cloth and shortage of labour. The millowners could hardly allow production to hamper. The workers invariably secured about ten per cent rise in wages.

The first general strike in the textile industry took place on 9th January 1919 which spread like wild fire to 75 mills out of 85 during the course of a day or two. It began with the Century mills on 27th December 1918 which attracted the minds of their colleagues in five mills. The workers marched from mill to mill and brought about a stoppage of all mills. The Police Commissioner, Mr. Vincent intervened at the request of workers and organised a meeting between them and the Governor. The Governor of Bombay also personally persuaded the millowners to meet some of the demands and the strike was settled after 17 days. It involved 1.50 lac workers, there being some acts of violence also.

There was no union to organise the strike, the only force behind being the Kamgar Hitwardhak Sabha, a welfare organisation. Some meetings were organised by S. K. Bole, H. A. Talcherkar, S. V. Patil and also by Congress leaders like Jamnadas Dwarkadas, Mavji Govindji, Dr. Sathe and Dr. Velkar. Mr. N. M. Joshi, who later became well-known as the father of the Indian trade union movement, did not take any direct part in the strike. He however championed the case of the workers in the press and on the platform.[2]

Another general strike of textile workers started on 1st January 1920 in the Jacob Sassoon mill, for bonus payment to offset high cost of living. It spread to 25 mills and by the 4th January it became a city-wide strike. The workers joined the strike spontaneously because of the discontent due to rising cost of living. It was guided by the Millhands Association and the Kamgar Hitwardhak Sabha. These organisations were not trade unions as such. They jointly formed an organisation called the Bombay Labour Settlement Committee, with N. G. Chandavarkar as president, and Joseph Baptista, Ginwala, Pawar, Talcherkar, Bole,

[1] The Royal Commission on Labour (1931) also shares these observations, although in a more subdued tone. The main cause was the realization of the potentialities of the strike in the existing situation, and this was assisted by the emergence of trade union organisers, by the education which the war had given to the masses and by a scarcity of labour arising from the expansion of the industry and aggravated by the great epidemic of influenza.

[2] V. B. Karnik, *Strikes in India*, 1967, p. 107.

Koregaonkar and Thakkar as other office bearers. This committee formulated the demands including reduction in working hours, recess of one hour, wage increase by 50 per cent, payment of wages on 15th of every month, compensation for injuries, etc. The workers struggle continued successfully for about a month. On request of the Labour Settlement Committee the Governor mediated, and the millowners who were already forced by the long bitter struggle of workers showed willingness to consider the demands. A settlement was reached, and the Committee advised the workers to resume work. The workers, surprisingly refused to respond for a couple of days, and abruptly ended the strike on 2nd February. The strike is memorable because apart from substantial wage increase, the working hours were reduced by two and compensation for employment injury was obtained. It paved the way for better legislative measures in the subsequent period. It became an event of national importance and served as a guidance for improved industrial legislation.[1]

In February 1920, 1500 municipal workers (sweepers) struck work for annual bonus and grain compensation allowance. The Municipal Corporation repressed the workers, and the agitation ended on 10th February through the intervention of the Bombay Central Labour Federation.

Workers of the Asiatic Petroleum Co. struck work over a demand for 20 per cent wage increase and one month's bonus per year, on 1st September 1920. It spread to the Burma Oil Company, Indo-Burma Petroleum Co. and Standard Oil Co. in about a fortnight. Mr. Ginwala, a solicitor and friend of trade unions brought about a settlement on 28th September, and the workers received 20 per cent wage increase. There was another strike by the oil workers in the next year on the bonus issue (1st February 1921). It involved about 2500 workers, but proved to be unsuccessful.[2]

The workers of the Bombay Gas Co. struck work on 1st October 1920 on the ground of victimization of eight workmen. The management justified their action as punishment for insubordination. Negotiations were held between management and workers' leaders, namely, Baptista and Jhabwala, but they were fruitless. The strike of about 1000 workers fizzled out with many workers losing their jobs.[3] The seamen's strike for four days in 1920 rewarded them with about 30 to 35 per cent wage increase.

The Tramway men of the B.E.S.T. launched on a strike on 7th October 1920 for wage increase, which fizzled out on 21st November. Though the workers resumed work unconditionally the management granted

[1] Vasant Gupte, *Labour Movement in Bombay*, 1981. pp. 42-44.
[2] V. B. Karnik. *Strikes in India*, 1967, p. 112.
[3] Ibid., p. 113.

certain concessions. The workers attempted another strike in 1922 which ended unsuccessfully, about 1300 workers losing their jobs.

G.I.P. Railway Strike : In May 1920, there was a strike of the G.I.P. railwaymen in Parel and Matunga workshops lasting for five days. In both cases the cause was delay in payment of wages as per the revised scales. The strike was withdrawn on an assurance for early payment. Next year the workers in Parel workshop struck work from 17th August to 12th October 1921 on grounds of a new scheme of dropping of tickets by workers and recognition of union. The Works Manager's office was raided and office records burnt. The agitation was called off after alterations in the existing arrangements. The strike however led to a split in the railwaymen's union. Baptista, the President, resigned accusing Mr. Jhabwala, the Secretary, of having mixed up politics with trade union organisation.[1]

Postmen's Strike : The first strike of postmen took place from 20th September to 8th October 1917 involving about 750 postmen and overseers on grounds of pay scales, recruitment of additional workmen and some other concessions. Conducted in a peaceful manner, the strike yielded some good results for the workers. The 1920 strike of postmen from 12th September 1920 to 12th February 1921, involving about 1500 P & T workers, was however a formidable one. The workers had a union with leaders like Baptista and Natarajan. A deputation of the All India Trade Union Congress met the Governor, but the strike was not successful.[2]

Strikes during the Great Depression : The Indian economy was showing recessionary tendencies from 1923 which became more and more evident in succeeding years. The climax was reached in 1930 alongwith the Western countries which were in the grip of the Great Depression.

In Bombay there were two general strikes of textile workers in 1924 and 1925.

Strike of 1924: The textile strike of 1924 was on the issue of bonus that was being paid every year since 1917.

The situation marked by angry demonstrations, riots, looting and police firing, gave birth to a new leader from the ranks, *viz.*, A. A. Alwe who was a weaver in one of the mills. During the strike, Mr. Alwe had talks with the Governor who suggested him to form a union. With this encouragement Alwe formed a trade union of textile workers in Bombay and named it Girni Kamgar Mahamandal and became its president. Joseph Baptista was actively associated with textile workers. He and his colleagues were against a strike. But once it took place they did not

[1] Ibid., p. 76.
[2] Ibid., pp. 114-15.

hesitate to help the workers. Baptista and others formed a committee to bring about a settlement, the members of the Committee being Baptista, N. M. Joshi, F. J. Ginwala, Kanji Dwarkadas, Jhabwala and G. N. Sahasrabuddhe. On appeal to the Governor by the Committee, the Government appointed a committee on 22nd February under Chief Justice of the Bombay High Court, with other members such as R. P. Masani, D. M. Thackersey, Municipal Commissioner, etc. The report of the Committee countered the demand for bonus on grounds of lower profits of mills, and demoralised the workers. The strike involving 1.16 lakh workers collapsed on 25th March after a loss of eight million man-days.

Strike of 1925[1] : The general textile strike of 1925 occurred on 15th September 1925 on the issue of wage cut (D.A.) by about 11.5 per cent. The reasons for the cut were higher price of cotton, increased costs, Japanese competition and unprecedented accumulation of cloth and yarn.

According to Mr. Alwe the employees' anger against Government was vented against workers. The strike was spontaneous, and began in a few mills on 15th September 1925, but spread to all the 76 mills in the city involving 1,45,000 workers. The strikers following the example of the Lancashire workers were prepared to meet half way, and met the Governor. The latter expressing sympathy for the workers was unable to help them in the face of stagnation of the textile industry. The strike became protracted, about 60 per cent of the workers returning to their villages, and the rest following odd jobs. "This strike costing 11 million man-days is a classical example of a struggle imposed by employers on their workers to be utilised as a weapon to extract concession from the Government."[2]

The strike was withdrawn after restoration of wage cuts on 3rd December after the Viceroy issued an ordinance (1st December 1925), suspending the levy of excise duty.

Harder Days : 1928 to 1930 were still more difficult years as all industries were in the grip of depression, wage cuts and threats of unemployment on account of rationalisation. Another feature of this period was the emergence of communist influence in the trade union field. The communists regarded every strike as an episode in class war which they were determined to develop. To them, economic demands were of searching consequence and they were to be utilised for fomenting discontent and struggle against the capitalistic system.

The revival of the national movement, and particularly the call for a protest strike organised by the Congress Committee on February 3,

[1] Based on issue of *Bombay Labour Gazette*, 1925 and 1926,

[2] Vasant Gupte, op. cit., p. 49.

1928, *i.e.* the day the Simon Commission was to land in Bombay, gave a vigour to strikes during this period. This protest strike was an extension of the hartal. Industrial workers joined the strike and participated in mass demonstrations. The communists exploited the situation to penetrate into all sections of workers.[1]

These factors led to bitter and long drawn struggles, the most important amongst them are described below.

Great Strike of 1928[2] : The great strike of 1928 was unprecedented in the history of either the textile industry or unionism. It had a deep impact and consequences of very wide dimensions. It caused re-alignments of trade union forces and the emergence of new leadership and a new ideology-oriented unionism. The communist unionists were the creation of this strike. It is therefore essential to narrate this episode thoroughly.

The industrial relations of the cotton textile industry began to show some signs of maturing into class conflict during the middle of the 1920s. The millowners had to adapt to the harsh realities of international competition and technical innovation. The Bombay Millowners' Association was required to become a mouthpiece for the industry and a common forum of the mill agents. The union leadership was also experimenting with new forms of union structuring. The BTLU and the Girni Kamgar Mahamandal both were benefited from the strike of 1925. But the Mahamandal's principal worker, Mayekar lost his prestige from 1926 and the communists exploited the situation in their favour. From January 1928, the Sassoon group announced their scheme for rationalisation and technical innovations, requiring the spinners to work on two sides of a ring frame for a 50 per cent increase in wages. This invoked a strike in the group's mills in Worli area.

Fear of unemployment was the main motive of the strikers. Since the beginning of November 1928, the Sassoon group of mills reduced the number of workers more than half. The Jacob mill also fell in line. The Sassoons would not retreat as the two-side spinning was a crucial part of their rationalisation plan, and regarded as essential to their economic survival. A parallel dispute took place in the Spring mill of Ness Wadia, Finlay mills, Kohinoor mill, Brady and Petit groups of mills, all of which had their own variant of rationalisation. The Brady and Petit groups laid off their spare hands, and the mills were changing to finer counts by reducing the size of their preparatory departments to match the lower intake of cotton.

Many mills were reducing wages by advocating various changes in production. The strategy of " nibbling off " wages was so successful that

[1] Vasant Gupte. op. cit., p. 50.

[2] Richard Newman, op. cit., pp. 168-209.

even a high Government official believed that a general strike had become "almost essential" if the workers were not to have their standard lowered. Another trend was towards stricter discipline and extra rules.

Sober leaders like N. M. Joshi still believed that the technical reforms were in the long term interest of workers, that rationalisation should be introduced uniformly by the Millowners' Association, with more attention to the related problems of redundancy and extra pay. Joshi's views prevailed with the BTLU, Jhabwala protesting. The ranks in the Mahamandal were also divided on the issue. Mayekar was compelled to quit, and the communists got an edge a little closer to formal power. The Mahamandal invited Dange, Nimbkar and Jhabwala to join its advisory committee. The millhands were still suspicious of these outsiders. However as rationalisation was increasingly adopted and local strikes collapsed, the millhands began to listen to the communists with a new respect. The attempt to widen the Sassoon disputes had been premature, the victim of the 'unhappy lack of class consciousness and class solidarity' as Joshi put it. An honest humanitarian that he was, Joshi's paramount concern was prevention of poverty and suffering, and was more inclined to compromise. "It was therefore to Dange, Nimbkar and Mirajkar, rather than to Joshi, that the millhands turned for advice as the industry slide into the greatest crisis of its history."[1]

The economic glut compelled the closure of six mills, while some others were working partially. This meant unemployment for many. In this way the significance of the Sassoon strike was undertsood by many people. There was widespread discontent, sporadic strikes, but all contributing to the rising tempo and bitterness of industrial conflict. There was a show of intransigence which although contrary to the views of the leaders, finally convinced them that the communists' predictions of a class conflict were about to become a reality. On 13th April 1928 the Mahamandal reversed its earlier decision under Mayekar and voted to declare a general strike.

Bombay's greatest strike began to evolve on 16th April 1928, with troubles in the Kasturchand mill, Currimbhoy and Mahommedbhoy mills etc. In the beginning it was simply a conglomeration of minor disputes. The trouble began to spread on 19 April. Nimbkar, Mirajkar, Jhabwala and Alwe led processions, and the situation went on worsening, even though the events were spontaneous revolts by the millhands. In the course of a few days one by one all the mills except the two at Colaba were in the grip of a great strike by 26th April.

Joshi's attitude to the strike was in line with his earlier views. The tactical differences among the leaders were partly resolved by the mill-hands though factionalism persisted for some time.

[1] Richard Newman, op. cit., p. 178.

However the financial difficulties of the militant group and the need for united bargaining with the Millowners' Association forced the parties together. The new Joint Mill Strike Committee was formed comprising the moderate contingent of Joshi, Ginwala, Asavale, Munawar, S. V. Parulekar and the militants Dange, Nimbkar, Mirajkar, Bradly (advisers of the Mahamandal), Jhabwala (Mill Workers' Union), Alwe, K. A. Desai, Avsekar and P. T. Tamhanekar. The Committee met on 3rd May for evolving a strategy for the strike and prepared a list of demands.

Even at this point of time the BTLU was the only union registered under the Trade Unions Act. On 23rd May the Mahamandal's Committee registered a union under the name Girni Kamgar Union (GKU). Jhabwala registered the Mill Workers' Union on 1st June.

The Joint Strike Committee prepared a list of 17 demands. " The essence of the demands was that none of the existing conditions of work should be varied 'to the disadvantage of the workers before securing the approval of the workers through their organisations' (No. 3) and ' that any changes made by individual mills should receive the sanction of the Association ' (No. 4). The same point was reiterated in every demand that left room for negotiation: no final solution of the industry's problems was possible without agreement within and between the parties concerned. In this way the unions insisted that the millhands should be treated as a single workforce, with themselves as its spokesman, an attitude that was justified both by the self-interest of the unions and the industrial developments of the previous decade. With this safeguard, the Strike Committee was prepared to reconsider the ' efficiency system ' in a more favourable light (No. 7) and to advocate the standardisation of pay, work and conditions (No. 10) and departmental rules (No. 15). Several existing practices were individually condemned : the forfeiting of unclaimed wages (No. 9), the issuing of attendance tickets and the enforcement of daily machine cleaning (No. 11), dismissal without notice (No. 13) and the informal methods of granting leave (No. 14). The Committee said that wherever daily working hours were less than ten they should not be increased without the consent of the workers and payment at overtime rates (No. 2). The Committee had several proposals to make on the subject of wages. It wanted them restored to the levels of 1925 (No. 1), it suggested that the dearness allowance should be amalgamated with the basic rates (No. 12) and it asked for total pay to be 'raised substantially' wherever it was less than Rs. 30 (No. 8). It also thought that the rates for new varieties should be fixed in consultation with the union (No. 5) and posted in the vernacular in the departments concerned (No. 6). All of this was refreshingly direct and practical and

a happy contrast with the vague proposals of middle-class strike leaders in the past."[1]

In the course of events Joshi and Dange had a tactical alliance as the former saw Dange's intellectual capacity to master technicalities of the industry and match the employers at the bargaining table. They had mutual respect for each other.

A good deal of time was wasted on recriminations and well-worn arguments, but the unionists realised the designs of the owners. Mill-owners put forward their standardisation scheme for wages by 26th June, which was rejected by unionists. The unionists accepted the jobbers' support in July which hardened the strike further.

The Strike Committee organised picketing and supply of relief. About 27,000 workers left Bombay in May to their native places. The Government estimated that 50,000 workers spent the strike away from the city. The other estimates were much higher.

Cracks had begun to appear in the carefully preserved facade of the owners' intransigence, some of which extended feelers to Dange and others. Both camps were exhausted. The strikers were at the end of their tether. On 20th September the Morarji Goculdas mill reopened. The Government convened a conference of Millowners' Association and the Strike Committee on 4th October. An agreement was reached to appoint the Bombay Strike Enquiry Committee which was appointed on 13th October by Government with Justice Fawcett as Chairman and P. Khareghat and B. S. Kamath as members. The Report of the Committee was published in March 1929.

On 6 October the mills officially reopened, and by 8 October 1928, 50,000 men resumed work.

The settlement was a victory for the workers, in spite of its qualifications. The owners had been forced to accept terms which they had earlier rejected, wages had been restored to their former level, though not to the 1925 level. Millhands except those in the Sassoon group had won a respite from the spread of rationalisation. The whole issue of wages and working procedures was now on the anvil of the Enquiry Committee, where Joshi, Dange and others could hammer it into a more acceptable shape.

"The most remarkable feature of the strike was undoubtedly the behaviour of the men." They sacrificed Rs. 3.5 crores of their own wages over a loss of 22 million man-days. They showed courage in desperate circumstances. Their commitment to the strike was impressive and gave a lie to judgement of British officialdom that the issues were

[1] Richard Newman, op. cit., p. 190.

not so much economic as political. " Rationalisation and retrenchment provided the foundation of protest, standardisation the unity of purpose, and the jobbers and the strike committee translated these elements into a form of industry-wide organisation."[1]

The balance of power among the unions was radically altered by the strike. The communists emerged as a force. As Dange said, " The strike was not our creation, but we were the creation of the strike." The alliance with Joshi gave substance to their leadership, and their association with the moderates enabled their recognition as the workers' spokesmen. By their association with the moderates the communists forced employers to recognise them.

Textile Strike of 1929 : Since the successful strike of 1928, Girni Kamgar Union (GKU) had become very powerfull and had formed mill committees in every mill. The committees started dictating terms to employers which invited hostility from the employers. Disputes flared up more quickly than the union could deal with. The mill committees were militant, though the communists felt concerned about their hostility. The employers had to deal with a union of the leaders and a union of the militant workers. Much of the confusion in industrial relations was due to the fact that the GKU had these two centres of influence which had not yet matured into a united organisation with a single strategy.

In Februnry 1929 communal tensions developed into riots between Hindus and Muslims. There was an upsurge of violence. The GKU was at a disadvantage as it could not control the rank and file and the various forces. In the meantime the leaders of the GKU were arrested for the Meerut trial on March 20. The Meerut arrests were the prelude to a third phase of industrial strife which culminated in the general strike of 1929.

In the meantime the Strike Enquiry Committee's Report (24th March 1929) gave its blessings to both rationalisation and standardisation, but urged that wage reductions should be postponed as a good gesture. The problem of victimisation eclipsed all other issues in industrial relations. The deliberations between the managing committee of GKU and mill-owners failed. The managing committee of GKU decided to call a strike from 26th April 1929.

The millowners knew that Dange and Joglekar, the leaders of the GKU, were under arrest in the Meerut case, and the owners were waiting for a strike when they could take stern action. To their expectations the GKU gave a call for general strike and on 26th April 1929, over a lakh of workers in 62 mills in the city were involved, resulting in a loss of

[1] Richard Newman, op. cit. p. 208.

about eight million man-days. However the workers were not enthusiastic as there were no common economic demands which could hold them together. The GKU resorted to violence, which necessitated the arrests of B. T. Ranadive and Deshpande and their allies.

The strike was a great disaster for the workers, and it badly affected the prestige and membership of the union due to failure of the strike. It was a turning point in the conduct of industrial relations. The failure left the union penniless, demoralised and divided. There was greater victimisation. New workers were recruited. The expelled workers were recruited on the employers' terms. The Millowners' Association was out to break the GKU.

The owners were aggressive. They organised the Blue Flag Union and broadcast their point of view. The idea of a company union first came from the manager of one of the Sassoon mills. The owners recruited strike-breakers from Bangalore, Ahmedabad and Indore. There was a demoralising effect on strikers. About a dozen mills in Madanpura had ignored the strike. Inter-union collaboration came to an end at the outbreak of strike. Jhabvala's union sympathised with the GKU stand on victimisation, but it gave no practical help. The BTLU and the Maha-mandal were opposed to the strike. The weaker minorities in the work-force found it impossible to stop work against the hardships of the previous strike. The jobbers translated the lack of unity of millhands into a defeat for the union. The Report of the Court of Enquiry (19th September 1929) further demoralised the union. Support for the unions dwindled; by the middle of 1930 the GKU had dwindled to less than a thousand members and the BTLU to only a few hundred.

G.I.P. Railway Strike (1930): The strike started on 4th February 1930. Originally it was meant to be a one-day protest against victimisation, low wages and the threat of unemployment. But R. S. Ruikar, the President of G.I.P. Railwaymen's Union decided to convert it into an indefinite strike. It was firstly general all over the Railway. The Government promised fair and early consideration of the demands. There were talks with the Railway Board which agreed to grant some concessions. Satisfied with the outcome of talks, S. C. Joshi, V. V. Giri and Dewan Chamanlal gave a call to wokers to resume work from 15th March. However the communists were not in agreement and wanted to prolong the strike, and launched a Satyagraha at all centres. There was a big morcha upto Victoria Terminus. This resulted into police firing. Later the strike was called off officially on 15th April 1930. It involved 22,608 workers, a large number of them being from Bombay.[1]

[1] Vasant Gupte, op. cit., pp. 56-57.

Statistics of Industrial Disputes[1]: During the period between April 1921 and June 1929, there were 401 industrial disputes in Bombay which involved 10,77,929 workers with a loss of 4,92,97,817 man-days. The industry-wise position of disputes in Bombay is given below:—

Industry	No. of disputes	Workers involved
Spinning and Weaving	317	10,21,682
Metal and Engineering	19	3,045
Railway Workshops	7	20,450
Railways	8	2,496
Printing and allied concerns	7	1,285
Government and public concerns	4	405
Municipality	6	7,143
Others	33	21,421
Total ..	401	10,77,927

Depression and Revival (1929-1936)[2]: The world economic crisis fell on India with heavier force than on any other leading country owing to India's extreme dependence on primary production. The value of Indian primary products, on which four-fifth of the population was dependent fell by one-half. This crisis gave a great setback to all industries. They cut down their production and also sought to reduce cost of production through wage cuts and rationalisation. A large number of workers were thrown out of employment in private industries and in public sector undertakings like Railways. Workers put up a vigorous and determined fight against this offensive. But it had no effect. In this period employers were not afraid of strikes. Many times they welcomed them as a convenient method for reducing production.

Apart from the economic conditions there were some other factors which came in the way of workers resorting to strikes. One was the split in the labour movement which widened in 1931 as the communists effected one more split. They broke away from the All India Trade Union Congress. The first attempt at unity succeeded only in 1934 when communists returned to it. The larger unity did not take place until a few years later.

The second factor was the widespread militant national movement which began in 1930. The mass Civil Disobedience Movement spread far and wide, and a number of trade union leaders participated in it. They were then not available for building unions or for organising strikes.

[1] Ibid.

[2] V. B. Karnik, *Strikes in India*, pp. 250-55.

Moreover there was a tendency in Government circles to regard strikes as a part of the Civil Disobedience Movement and to deal with them harshly.

The third factor which contributed to the downward trend was the possibility of gradual improvement in conditions of work and life opened out by the recommendations made by the Royal Commission on Labour.

As against these there was the constant and strong pressure of communists to organise strikes and develop struggles against employers and the Government. But for this, pressure might not have taken place. In the end in 1934 the Government illegalised the Communist party and some other organisations closely associated with it including some trade unions.

The attitude of the Government was throughout harsh and unsympathetic. Government used emergency legislation like the Public Safety Act and the Criminal Law Amendment Act on occasions to arrest and detain strike leaders.

In 1934, the Government of Bombay put on the statute book a new measure called the Bombay Trade Disputes Conciliation Act. The object of the Act was to avoid strikes which had plagued the industry during the previous years. It followed the collapse of the general strike of 1934.

One of the objects of the legislation was to put an end to communist domination over the textile workers of Bombay.

The strikes of this period in Bombay were as follows:

Textile Strike of 1934[1]: A general strike of textile workers took place in Bombay in April 1934 and was organised according to the decision taken at the All India Textile Workers Conference held in Bombay in January. This was to be an all India general strike. But in actual fact it took place only in Bombay, Nagpur and Sholapur.

The general strike was the culmination of a large number of strikes in individual mills which took place in the preceding three years. As a matter of fact during the whole period there was no peace in the textile industry. It was the natural reaction of the workers to the wage cuts and rationalisation. In the name of trade depression and with a view to cut down costs, millowners had embarked on a campaign to reduce wages and to introduce labour saving devices.

Communists organised many strikes during the period, but most of them failed. Other leaders were also in the field, they were also compelled to organise strikes but they never allowed things to get too far. Towards the end of 1933 it was realised by both sections that the only remedy under the circumstances was a general strike of all the textile workers. The Joint Strike Committee of Communists and Non-Communists represented

[1] V. B. Karnik, *Strikes in India*, p p. 256–59.

the All India Textile Workers Conference and Council of Action. The strike began on 23rd April. But later the strike committee split up. The number of workers involved in the strike was about a lakh. There were fourteen demands.

On 30th April a batch of 14 leaders of the strike was arrested and detained under the Bombay Special (Emergency) Power Act. They were released only after the end of the strike.

Attempts were made by some public organisations to settle the strike. But both the millowners and the Joint Strike Committee were adamant and no *via-media* was possible. The strike collapsed on 20th June. It was later officially called off by the Joint Strike Committee.

After the end of the strike the Government of Bombay instituted a criminal case under the Trade Disputes Act against some leaders. However Government lost the case in the lower court as well as High Court. The Government of India brought forward a bill to amend the particular section of the Trade Disputes Act. The Government of Bombay enacted the Bombay Trade Disputes Conciliation Act to deal with disputes in the textile industry of Bombay.

Tramway Workshop Strike : A dispute arose in September 1931 in Kingsway Workshop of the Bombay Electric Supply and Tramways Company. The dispute was over the closure of workshop on every Monday. The other demands included security of service, revision of wages, recognition of the union. During this period the company declared a lockout; 512 workers were involved. The compromise between the workers and the company was accepted, and the lockout was lifted on 21st October.

Dock workers' Strike : Dock workers were until 1930 one of the most exploited and most unorganised section of the Indian working class. Their wages were low, hours of work were long and employment was intermittent. Besides, they were in a large majority of cases employed by contractors.

The first organised strike of dock workers took place in 1932 which began on 12th March and settled on 4th April. It was organised by the Bombay Dock Workers Union under the leadership of Dr. M. R. Shetty and Mr. A. N. Shetty. It took place for an increase in wages and various allowances and for stability of employment. The abolition of contract system was also demanded but it was realised from the very beginning that it was difficult to get it.

The strike created a big stir in the dock area as nothing of the kind had ever happened before. There were some violent incidents in the strike. The strike was settled on 4th April through a compromise reached between the union and the stevedoring firms. Workers received 25 per cent increase

in wages and some additions to their allowances. The union was also granted recognition.

There were in the next couple of years a number of small strikes of various types of workers in the dock area.

Municipal Workers' Strike : In 1932-1933 there were several short-lived strikes in some of the departments of the Bombay Municipality. The strike in the drainage department in September 1932 is notable because the Bombay Municipal Servants' Act was utilized, as in 1928, to break the strike. Miss Maniben Kara succeeded in securing a compromise through talks with the Municipal Commissioner. The strike took place in order to secure an increase in wages from Rs. 25 per month to Rs. 30 per month. The number of workers involved was about six hundred.

Strikes under the Congress Rule : Under the Government of India Act of 1935, labour had some representation in provincial Legislative Assembly. The total number of seats allotted to it was 38. There was also a slight broadening of franchise. This enabled some sections of workers to have a little influence over elections in general constituencies. Labour thus became a political factor which all politicians had to take into consideration.

The Indian economy began reviving in 1934. In the next couple of years it made a good recovery, and by 1937 it reached a stage of normal expansion.

The establishment of popular government helped labour to put forward their demands.

Immediately on assumption of the office, the Congress Ministry of Bombay made the declaration with regards to its labour policy. The enthusiasm resulted in the organisation of new unions and also resulted in the growth of strikes. In Bombay, the Congress Ministry in 1938 enacted a law, applicable in the first instance to the textile industry, which for all practical purposes outlawed a strike. It was called the Bombay Industrial Disputes Act of 1938. Gulzarilal Nanda, the former General Secretary of the Textile Labour Association of Ahmedabad, who was then a Parliamentary Secretary was the main architect of the legislation. The Act was amended from time to time and was finally replaced by the Bombay Industrial Relations Act in 1946.

The Government of Bombay set up the Textile Labour Enquiry Committee under the chairmanship of Mr. Jairamdas Daulatram. The Committee brought out its final report in 1940, but by that time the Congress was no longer in the office.

Towards the end of 1938 there was a strike of seamen in Bombay. It was on the issue of employment by rotation. It was continued for four months and the workers succeeded in getting their demands.

LABOUR MOVEMENT DURING WORLD WAR II[1]

The Second World War began in Europe in September 1939. Immediately thereafter the Viceroy made India a party to the war. The Indian National Congress took strong objection to this course of action adopted by the Viceroy. Its stand was that India would not participate in the war except on the basis of the solution of her political problem. This led to a conflict between the Government and the Congress resulting in the Quit India Movement of 1942.

Immediately there was an increased demand for labour and also a desire on the part of the Government to see that there were no strikes and lockouts so that the production might not be interrupted. But along with increased economic activity there was a steep increase in the prices of essential commodities and resulted in demand for dearness allowance. In some cases in Bombay and Ahmedabad long term agreements were evolved for the payment of D.A.

During the period there were some one-day political protest strikes. The two most notable were in Bombay, one on 2nd October 1939 and another on 26th January 1940. The strikes were organised mostly by communists.

The textile workers of Bombay organised a general strike on the issue of D.A. in March 1940. Earlier the issue had been referred to a Board of Conciliation. The Board recommended granting D.A. at a certain rate and was accepted by millowners, but not by the Girni Kamgar Union (Red Flag). In the month of February there were strikes in several mills but the union advised the workers to call them off as the issue could not be settled only through a general strike. The communists however called the strike on 5th March. It affected about 1,57,000 workers in all the mills in the city.

As soon as the strike began, Government orders prohibiting meetings, processions etc. were issued by the Police Commissioner. Government also arrested under D.I.R. a number of union leaders prominent amongst them being Mr. Dange, Mr. Ranadive, Mr. Parulekar and Mr. Mirajkar. During the course of strike the All India Trade Union Congress gave a call for a one-day sympathetic general strike and it took place on 10th March and about three lakhs workers participated in it. The Millowners' Association was in a strong position as it had accepted the recommendation of the Board of Conciliation and they refused to do anything more. There were also dim prospects of securing anything more. This had its effect upon workers, and they started drifting into the mills from the first week of April and normal work was resumed in all mills on 13th April. Thus the strike ended unsuccessfully.

[1] V. B. Karnik, *Strikes in India*, pp. 293–300.

G.I.P. Railway Workshop Strike[1] : During the World War II there were two important strikes in the Parel Workshop. The first started on November 6, 1941 over a demand for increase in dearness allowance. The Railway Board responded by granting D.A. of Rs. 4.50 per month. But the workers did not respond despite advice of the leaders to withdraw the strike. The management further conceded a concession of continuity of service. Thereupon the workers withdrew the strike on 19th November.

The other strike by the same workers started on 16th April 1941 over an issue of granting travelling concession to permanent workers for evacuating families from Bombay. On the 1st May, S. C. Joshi, General Secretary of the G.I.P. Railwaymen's Union led a deputation to the General Manager, when an agreement was reached. The strike was withdrawn from 4th May.

Dockyards Strike : On April 20, 1941 about 6,000 workers in the dockyard resorted to a strike demanding public enquiry of the arrest of a worker. The matter involved violence upon which Jamnadas Mehta persuaded the Dockyard authorities to release the arrested workers. The workers however did not relent, and it was only after N.M. Joshi's promise to place their demands before the Government of India that the workers withdrew the strike from 28th April.

B.E.S.T. Strike (1941) : The B.E.S.T. Traffic Union and B.E.S.T. Workers' Union struck work on 28th May 1941 for pay scales, dearness allowance, annual leave, double wages for work on weekly holiday etc. This agitation involved more than 1200 workers. The dispute was referred to adjudication of a High Court Judge. N. M. Joshi advised withdrawal of the strike and the workers responded on the 2nd June.

Besides, there were a number of strikes in medium and small factories in Bombay, which were mainly for demand of bonus, increase in wages, restoration of wage cuts, etc. Workers in soap factories like Lever Brothers, Swastik Oil Mills and Tata Oil Mills went on strike in the middle of 1941. Most of the strikes ended with a compromise and give and take. There were also some strikes by workers demanding adequate supply of food-grains quota. This vital problem was solved by the employers by making some arrangements for improving supply, because they were eager to continue production in the wake of war demand and high profits.

All India Postal Strike, 1946[2] : The postmen and lower grade staff union launched a strike on 10th July 1946 on the ground that the Government had not implemented the assurance of revision of pay scales given in February 1946. Consequently the postal services were adversely affected in Bombay as in India. It was supported by AITUC. The latter

[1] Vasant Gupte, op. cit., pp. 121-22.
[2] V. B. Karnik, *Strikes in India*, pp. 317–18.

organised a sympathetic strike on 22nd July which involved about half a million workers in Bombay Presidency for a day. The telegraph workers in Bombay joined the fray on 23rd July which spread to other centres. At this stage Sardar Vallabhbhai Patel intervened and persuaded the Government to implement the earlier offer of relief. Upon this the strike was called off on 5th August 1946. The strike of telegraph workers lingered for a few days, but was abandoned. It received a good deal of popular support on account of the political movement against the British.

Indian Navy Strike, 1946[1] : It was a political strike, the grounds given being improvement of service conditions. In the true sense, it was a mutiny of the naval workers against imperialistic rule. The Government also treated it as such, and but for the pressure of the nationalist movement Government would have crushed it mercilessly. The trouble started with a hunger strike of the ratings of the signal school of the navy on 18th February 1946 as a protest against hardships and racial discrimination. The ratings from the entire naval establishment in Bombay including about 3000 persons held demonstrations the next day. The following day witnessed the involvement of all the ships of the navy in Bombay, two of them hoisting the Indian National Congress flag.

The episode led to a heavy exchange of fire between the army and the naval ratings on 21st February 1946. The strike spreaded to other naval establishments in India. It also led to a sympathy strike by the Royal Indian Airforce men at Sion and the Royal Army Supply Corps at Kurla which had repercussions on the airforce and army men in other centres in the country also. Demonstrations of industrial workers in Bombay turned violent. Workers in mills, railway workshops and other categories raised violent demonstrations which invited Government's wrath. The leaders of the Indian National Congress including Patel and Nehru advised the strikers to call off the agitation. The strikers responded, and the strike was called off on the 23rd. The Government appreciated the good gesture by not taking any action against the strikers except those involved in violence.

Textile Strike of 1950[2] : It was the second largest strike of the textile workers in Bombay, the previous longest one being that of 1928. The strike of 1950 was organised by the Mill Mazdoor Sabha, an affiliate of the Hind Mazdoor Sabha. The union, though established in 1947, claimed the largest following among textile workers. The strike continued for 63 days involving more than one lakh workers. The strike occurred on account of a dispute over the bonus award by the Industrial Court. The Rashtriya Mill Mazdoor Sangh (INTUC), the registered representative union and the Millowners' Association had arrived at an agreement for

[1] Ibid., pp. 318-20.

[2] V. B. Karnik, *Strikes in India*, pp. 341–44.

the payment of bonus. However, the Mill Mazdoor Sabha opposed the agreement and gave a call for strike which began on 14 August 1950. The call for the strike was opposed by the Government and the R.M.M.S. Initially the communists and their Bombay Girni Kamgar Union had opposed the indefinite strike, but later supported the same as it was groomed to be successful. The Hind Mazdoor Sabha and the Socialist Party extended their full support and organised a one-day general strike on August 31 in all industries. The events led to violence and police firing causing the death of ten persons.

After announcement of modifications in the earlier bonus award by the Labour Appellate Tribunal, the strike was called off from 16th October as the workers were also quite exhausted in the struggle and were demoralized. The strike which lasted for 63 days, caused a loss of 92,11,117 man-days, involving a loss of wages estimated at Rs. 350 lakhs. The loss of production was estimated at Rs. 22 crores.

The strike was unsuccessful, and exhibited a lack of confidence of the workers in the R.M.M.S. The mill Mazdoor Sabha although enjoyed support among workers, it could not make deeper inroads on membership of the R.M.M.S. The strike had attracted the attention of foreign organisations like the British Trades Union Congress, International Confederation of Free Trade Unions and other labour organisations in the West.

Besides, there were a number of other strikes in the post-Independence period affecting the working of the dockyard, the Bombay Port Trust, the Air India (18 February 1949), 43 silk mills (July 1948) and the petroleum workers of Burmah Shell and Stanvac Oil Companies (28th February 1950 to 14th March 1950). An important strike in the period was that organised by the Bombay Municipal Kamgar Sangh from 13th May 1949. It involved more than 10,000 workers of the Bombay Municipal Corporation, and ended unsuccessfully after more than five months on 7th October. The man-days lost in this episode amounted to 6,72,099.

During the decade 1941-50 there was intense industrial unrest which was attributable to a number of factors such as protests against decline in standard of living, demand for workers' share in profit, spread of consciousness and increased union activity. Industrial Courts and Adjudicators played an important role in averting work stoppages.

Some Recent Developments : Industrial peace in Bombay was disturbed very often than not in the fifties and sixties of this century. The most important disquieting factor which generated strike and conflicts was the continuous rise in prices. Consequent upon the vast expenditure on development and the burden imposed on the national economy by the needs of defence preparedness against the background of the aggressions by China (October–November 1962) and Pakistan (October 1965),

prices, more particularly the prices of foodgrains and other essential goods, escalated rapidly from month to month. There was an all-round dissatisfaction and resentment among the working class.

The Bombay unions affiliated to the Hind Mazdoor Sabha took the lead in giving an organised expression to the protest of workers against the rise in prices, the scarcity of foodgrains. and the imposition of Compulsory Deposit Scheme.[1] They decided to organise a one-day protest strike in Bombay. All unions except those affiliated to the I.N.T.U.C. agreed to organise a ' Bombay Bandh ' to cover all industrial and commercial activities. A Joint Committee, namely, the Mumbai Mazdoor Sangharsh Samiti was formed to organise the protest strike. The Committee gave a call for 'Bombay Bandh' on 20th August 1963. Over seven lakh workers belonging to all industries, such as textile, engineering, chemicals, docks, banks and other white collar workers also participated in large numbers. Only the essential services were exempted from the ' Bandh '. As per the *Times of India* of the next morning the strike " stood out as the most well conducted ".

With its spectacular success in Bombay, the ' Bandh ' became a new popular form of struggle. Several Bandhs were organised thereafter. " The ' Bandh ' cannot be said to have brought any definite relief to workers but they highlighted their plight and compelled the Government to pay some attention to it."[2]. They were mixed trade union-*cum*-political party actions.

The municipal workers of Bombay had organised, during the period, two notable strikes, one in 1962 and another in 1963. Both were on the issue of dearness allowance. The first one was successful to a large extent, and was settled through the intervention of Mr. Y. B. Chavan, Chief Minister of Maharashtra. The second which began on 11th August 1963 was ventured by the Socialist leaders of the Municipal Workers' Union, and involved about 30,000 workers. They had the support of workers in other industries too. The dock workers struck work for a day in sympathy with them. Bus and tramway workers and taximen also went on sympathy strike for three to four days. The gigantic demonstration of 'Bombay Bandh' of 20th August 1963 also took place during the course of the municipal strike. Yet the strike failed and workers had to resume work on the 12th day without securing any benefit.

" The strike failed because, owing to the wrong attitude adopted by the leadership of the union, it assumed a political colour, became in fact a confrontation between the union and the Government."[3] Though the demand of workers was an economic one, the union leaders insisted on

[1] V. B. Karnik, *Indian Trade Unions*, 1966.
[2] Ibid.
[3] Ibid.

intervention of the Home Minister and the Chief Minister without utilising the usual machinery for settlement of the trade disputes. The consequence was coercion, arrests, recruitment of strike breakers and suspension of some workers.

A great loss to the trade union movement in Bombay as also to India was caused by the death of G.D. Ambekar in 1964, the Treasurer of the INTUC and the General Secretary of the Rashtriya Mill Mazdoor Sangh of Bombay. He was a devoted and selfless worker, and a capable and farsighted leader.

The one day strike of June 7, 1966 in the textile mills in Bombay was one of a great magnitude. It involved 1,72,282 employees who protested against the Bonus Ordinance. A similar episode had taken place earlier on December 29, 1965 against the cut in dearness allowance. It involved 1,69,827 textile workers in Maharashtra including Bombay. The next one in importance from the point of view of man-days lost was the strike of workers in Mahalaxmi Glass Works, Bombay, as a protest against the decision to close the semi-automatic section. The management had declared a lockout after the commencement of the strike. The strike began on March 2,1965 and ended successfully on July 29,1965.It involved 894 workers with a loss of 95,956 man-days. There were four important lockouts in Bombay during 1965 which caused a loss of 1,47,284 man-days. The lockouts were in the Siemens Manufacturing Company (1,119 workers), Firestone Tyre and Rubber Co. (1243), Mahalaxmi Glass Works (894) and Krishna Steel Industries.[1]

TRADE UNIONS IN BOMBAY

The earliest known example of a welfare organisation of workers is the Bombay Millhands Association, which was established in 1890 by N. M. Lokhanday, the first leader of Indian workers. It was formed to ventilate the grievances about hours of labour and the internal regulations of some of the mills, with a view to influencing revision of the Factory Act. It had no formal membership, no funds or rules.

The first body that is generally credited with trade union characteristics was the Kamgar Hitwardhak Sabha, founded in 1909 by B. R. Nare, S. K. Bole and Talcherkar. It began as a broad-based welfare movement aiming at education, support in unemployment or sickness and help settlement of industrial disputes. During the 1920s the Sabha sank gradually from public view and seems to have disappeared from about 1925.[2] Its membership was drawn from municipal workers and those from Parel railway workshop and the mills around DeLisle Road and Chinchpokli.

The other welfare body for the cause of mill workers was the Social Service League, N. M. Joshi being its leader. Joshi and the League were

[1] *Labour Gazette*, Government of Maharashtra, December 1966.
[2] Richard Newman op. cit., p. 114.

inseparable in spirit. It may be mentioned that in January 1921 the Government chose him to fill one of the labour seats in the Central Legislative Assembly, a seat he was to occupy with only a few months interruption until the Assembly was dissolved in 1947. He served on the Royal Commission on Labour (1929-31) and several enquiries. " His greatest prominence was achieved as India's representative to the International Labour Organisation."[1] The League had begun in 1913.

The Girni Kamgar Sangh was formed in 1919 by Kanji Dwarkadas, L. R. Tairsee and D. R. Mayekar, which was managed by workers only. It had however no great impact on labour matters. It was in January 1920 that the existing unions were fused into a United Textile Workers' Union with Baptista as President. Its activities were however limited, and the condition of textile industry from 1920 to 1923 was also not propitious for its activities.

The national freedom movement " was the most addictive diversion of trade union leaders."[2] The All India Trade Union Congress (AITUC) which first met in Bombay in October 1920, was the most important federation of trade unions. Even at its birth, however the internal squabbles of the Bombay leaders were exhibited.

The legal basis for trade union organisation was provided by the Indian Trade Union Act of 1926. Registration under the Act was voluntary initially, and it did not entitle a trade union to secure recognition from employees. With the passage of the Industrial Disputes Act (1947), a better status was given to the registered trade unions, in that the advantage of machinery set up for the settlement of industrial disputes is available only to registered unions. As regards recognition, at the Sixteenth Indian Labour Conference held at Nainital in May 1958, the Government and the employers agreed in principal to the adoption of criteria and conventions for the recognition of trade unions. Little progress has, however, been made with regard to its implementation. Under the Act, any seven or more persons can register as a trade union and any registered union can represent the workers. This naturally creates inter-union rivalry. Because of this every industry and every large factory have more than one union. The slogan of 'one industry, one union' is yet to materialise. The Bombay Industrial Relations Act tried to remove the defect partially by creating a category of ' Representative Union ' which alone can represent the workers before Industrial Courts. The Industrial Relations Act (1946), however, is not applicable to the engineering industry, as it is governed by the Industrial Disputes Act of 1947. Inter-union rivalry is inevitable though Government has attempted to reduce its intensity by having an inter-union code of conduct.

[1] Richard Newman, op. cit., p. 114.
[2] Ibid., p. 140.

The progress of trade unionism goes along with the degree of the development of industries and in case of a particular industry along with its development. In Greater Bombay, the trade union movement appeared first in the textile, transport and communications and printing groups because these industries were the first to develop. Bombay is a centre of the cotton textile industry since the middle of the last century. The city is also the main centre of different types of transport, such as railway, shipping and bus transport. The development of means of communications, such as posts, telegraphs and telephones facilitated the formation of trade unions in these sectors. Printing is also in a sense an old industry. The trade union movement scarcely extended beyond the sectors stated above till the Second World War. The development of the engineering industry was essentially a war and post-war phenomenon, and therefore, the trade union movement in this industry emerged itself in a substantial measure only in the war and post-war period.[1]

Girni Kamgar Mahamandal: It was founded in December 1923 under the leadership of Bhatvadekar, Mayekar, A. A. Alwe, Tawde, Kusgaonkar, K. A. Desai and G. R. Kasle, all of whom were mill workers, although in a relatively higher pay group. The membership of the Mahamandal increased with the strikes of 1924 and 1925. From the middle of 1925 the Mahamandal deliberately sought the backing of jobbers in mills, as they had an influence over the workers. It emerged from the 1924 strike without open attachment to any political faction. Communists like Joglekar were on the union's advisory committee in an individual capacity. Mayekar looked after the union's administration and edited its newspaper, the *Kamkari*.

Early in 1925 the All India Trade Union Congress (AITUC) set up a Textitle Workers' Organisation Board composed of Baptista, Joshi, Ginwala, Jhabvala and V. P. Lele. After some pamphleteering, Ginwala and Jhabvala launched a new union in Parel, the Bombay Textile Workmen's Union, which aimed to provide a proper grievance procedure and advice on strike matters to avoid a repetition of the losses of 1924. The Madanpura Mill Workers' Union was formed by Syed Munawar of the Social Service League in 1925. Two other embryonic unions appeared in the early months of 1925, one at the Bombay Industrial mill and the other at DeLisle Road, but neither of them was backed by the AITUC, and neither seems to have survived for long.[2] In spite of these organisations the jobbers in mills had an upper hand in controlling the incidence of strikes, and " the struggling Mahamandal, the moribund Hitwardhak

[1] Dr. B. R. Rairikar, *Wages and Earnings in Engineering Industry in Bombay City and Suburbs* (unpublished Thesis for Ph.D. degree of the University of Bombay).

[2] Richard Newman, op. cit., p. 153.

Sabha and the two feeble fledgings of the trade Union Congress "[1] could not control the millhands.

Bombay Textile Labour Union (BTLU): On 31st December 1925 the representatives of all organisations, except the Mahamandal, agreed to form the Bombay Textile Labour Union by amalgamating the Madanpura Mill Workers' Union, the Bombay Textile Workmen's Union, the Sat-Rasta Girni Kamgar Sangh, all of which had existed before the 1925 strike; the Kurla Kamgar Mandal, formed in October under guidance of Bakhale and Jhabvala, and other groups of millhands. N. M. Joshi was elected its first President with other office bearers including Asavale, Ginwala, Jhabvala, Bakhale, Kanji Dwarkadas, Syed Munawar, Bole and Talcherkar. " The new union can be seen as formal consummation of the developing relationship between Joshi and two other groups concerned primarily with welfare; the Central Labour Board and the Dwarkadas faction of the former Home Rulers. It was also an attempt to secure the political flanks of trade unionism by bringing various movements into coalition : the Liberals (Joshi and Kanji), Congressmen (Ginwala and Jhabvala), reformist non-Brahmans (Bole and Asavale) and local notables of the Muslim community. In spite of its welfare antecedents, the BTLU had more pointed economic objectives than the Mahamandal. ..... The union's objectives and the shape of its constitution reflected Joshi's wide knowledge of labour affairs and the multifarious contracts he had made in India and abroad".[2]

The BTLU began with a membership of less than 5000. It stood for political concessions to labour and better representation to workers in Legislature and municipalities. It was dependent upon jobbers.

The BTLU and the Mahamandal attempted to graft trade unionism on to traditional forms of leadership, and to build union out of alliances, with the jobbers.

Girni Kamgar Union (GKU) : Registered in May 1928, the GKU emerged as a great force in the labour movement in Bombay under Alwe, Jhabvala, Bradley, Nimbkar, B. T. Ranadive, S. V. Ghate, S. A. Dange, Joglekar and Mirajkar. After the successful strike of 1928 the response of the workers to this union was magical. By the end of 1928 the total number of members was about 50,000, which increased to one lakh in January 1929. The growth of the union was spontaneous. The jobbers in mills were also willing to ally themselves with the GKU because they still sought protection against the standardisation scheme. By the beginning of 1929 the other textile unions offered no real competition to the GKU. The failure of the 1929 textile strike was however regarded as a failure of

[1] Ibid., p. 154.
[2] Ibid., pp. 160-61.

the GKU. The GKU insisted that relations with the employers were crucial and that organised strength was the best way of advancing the workers' interests. In spite of its failure in the 1929 strike, it made an important contribution to the political life of the mill area and to the growth of labour movement.[1]

Railway Employees' Unions[2] : Some of the railway employees had organised themselves as early as 1897, the organisation being called the Amalgamated Society of Railway Servants of India and Burma. This Society changed its name to National Union of Railwaymen of India and Burma, while registering in 1928. In 1919 was formed another union called G.I.P. Railwaymen's Union which was later on amalgamated with G.I.P. Railway General Employees' Union in 1928. It had a membership of 41,000 in 1929.

Seamen's Unions[3] : The Indian Seamen's Union was formed in 1921. The membership of the union was 21,512 in 1929. N. M. Joshi and Parulekar of the Servants of India Society and Syed Munawar were the important office-bearers of this union. In 1926 a new union, namely, Bombay Seamen's Union was formed, which had a membership of 548 in 1929.

Postal Unions[4] : The Bombay Postal Union was formed in 1907, and was probably the earliest union in Bombay. It had a membership of 1500 in 1929 from among clerical staff. The Bombay Postmen's Union was formed in 1925, which included 1286 members in 1929.

Municipal Unions[5] : Trade union movement in municipal services began in 1927 when the Bombay Municipal Workmen's Union was established. The clerical staff also organised the Bombay Municipal Officers' Association in April 1927. In September 1928, the Servants of India Society and the Social Service League formed another union under the name, Bombay Municipal Kamgar Sangh.

Port Trust and Dock[6] : The Bombay Port Trust workers were among the earlier workers to unite. They formed two unions in 1920, namely, Bombay Port Trust Employees' Union and the Bombay Port Trust Railwaymen's Union, which had a membership of 1891 and 457, respectively in 1926. During the period 1926-28 three more unions were formed by dock workers, each of which had membership around one thousand. The B.P.T. Union is still in existence.

[1] Richard Newman, op. cit., p. 260.
[2] Vasant Gupte, op. cit., p. 68.
[3] Ibid., pp. 68-69.
[4] Ibid.
[5] Ibid.
[6] Ibid.

Besides the above early period unions, there were a number of unions in the period prior to 1930. The names of a few registered unions among them in Bombay city are mentioned below:—

Name	Month and year of formation	Membership (March 1929)
General Workshop Men's Union ..	May 1928	500
Bombay Engg. Workers' Union ..	Dec. 1928	1053
Tramways' Union	March 1927	324
Press Workers' Union	March 1927	310
Bombay Telephone Employees' Union ..	March 1928	195
Bombay Kasbi Karigars' Union ..	March 1927	N.A.
Bombay Taxi Drivers' Union	August 1928	742

All India Trade Union Congress (AITUC) : A convention of representatives of various trade unions was organised at the initiative of N. M. Joshi, at Parel on 16th July 1920 to consider the arbitrary decision of the Government of India while selecting the Indian workers' delegate to the first session of the ILO held in 1919. This convention decided to form a central organisation of trade unions, namely All India Trade Union Congress. The AITUC met for the first time in Bombay in October 1920. The office-bearers of the AITUC included Lala Lajpatrai, Joseph Baptista, C. F. Andrews, S. A. Brelvi, Dr. Annie Besant, Dewan Chamanlal, N. D. Gadgil, V. G. Dalvi, Anant Ram and Vaikunth Ram and L. R. Tairsee. This was the first central organisation in India in the formation of which Bombay city and Bombay unionists had a lion's share.

Trade union movement passed through several vicissitudes and hazards in the course of time. There were many occasions of unity and disunity. The Congressmen, the Royists under M. N. Roy, the Communists and others had differences, sometimes ideological, tactical or personal. The AITUC was thus a divided house.

Indian National Trade Union Congress (INTUC) : The Congress leaders on their release from jail in 1945 found that the AITUC had gone into the hands of Communists. They therefore started recapturing their unions and their position in the AITUC. In the meantime, the Congress came into power in most of the provinces, while the Communists had reverted to their old militant policy of class conflict. The sequel of events led to a conference in New Delhi under the chairmanship of Sardar Vallabhbhai Patel in May 1947. The Conference decided to constitute the Indian National Trade Union Congress, a new and powerful central organisation, with an affiliation of 200 unions and 5.75 lakh members.

Trade Unions in Bombay (1940–47) : During this period, the growth of trade unionism in Bombay was unprecedented both in respect of number of unions and membership. Their position is given below:—

Year (December)	No. of Unions	Membership	Year (December)	No. of Unions	Membership
1940	82	128,634	1944	117	166,254
1941	84	116,854	1945	140	198,383
1942	90	124,243	1946	193	212,977
1943	100	138,882	1947	279	295,685

The above account mainly pertains to the trade union movement in the cotton textile, railways, posts and telegraphs, port trust and docks, municipality and other sectors. Unionism in the engineering industry was a comparatively late development which is dealt with below.

Trade Unions in Engineering Industry[1] : The first union in the industry was registered in 1929. It was called the Bombay Engineering Workers' Union with a membership of 250. It was followed by the General Workshop Employees' Union, registered in 1930. Both the unions had a very short life of a year or so. It was during the Second World War and the post-war period that the greatest progress took place in the engineering industry which provided stimulus to increase in unions. The rising prices, the desire to have a share in the enormous war time profit and the fall in real wages prompted the workers to organise themselves. The rise in employment in this industry, also led to rise in unionism in the industry. In 1945-46, there were seven city unions in Bombay, besides three plant unions which together had a reported membership of 6820. The names of the unions in engineering industry in Greater Bombay as in 1945-46 are given below, as they were the pioneers in the Engineering industry:—

Unions		Year of Registration
City Unions		
1. Engineering Workers' Union	..	1940
2. Bombay Metal Workers' Union	..	1941
3. Engineering Factory Kamgar Union	..	1942
4. National Engineering Workers' Union	..	1945
5. Iron Workers' Union	..	1945
6. Bombay Iron and Steel Workers' Union	..	1943
7. Bombay Engineering Mazdoor Sangh	..	1945

[1] B. R. Rairikar, op. cit.

Unions	Year of Registration
Plant Unions	
8. Calenders, Cables and Construction Company Employees' Union ..	1942
9. Godrej and Boyce Employees' Union ..	1943
10. Indian Radio and Cable Communications ..	1943

The employment in the industry in 1946 was about 60,040. It seems, therefore, that a little more than 10.56 per cent of the workers were unionized.

Trade unionism had a continuous and phenomenal rise in the post-war period. The main cause might be the worsening economic condition of the workers. The higher profits earned by the entrepreneurs invoked a strong feeling among the workers to have a share in the profits in the form of bonus. Government policy inspired by welfare objectives created a psychology of expectations in the minds of workers. "The machinery of compulsory adjudication through which the trade union movement tried to have expansion of wages in terms of the Fair Wage Committee's Report helped the trade union movement to make further advantage."[1] Most of the industrial disputes involved the problem of wage, D.A. and bonus.

The number of city unions, which can be styled as federations of committees of workers in various factories, increased to nine, and of plant unions to 15 in 1950-51. The important additions to the plant unions were the Richardson and Cruddas Union (May 1946), Crompton and Parkinson (December 1946), Mackinnon and Mackenzie (September 1946), Greaves Cotton (November 1946), Larsen and Toubro Union (January 1948), Sankey Electrical Stamping (March 1948), Rallis Brothers (July 1947), Volkart Bros. (July 1947), Estrella Batteries (December 1947), Standard Batteries (June 1948) and East Asiatic Employees' Union (December 1948). The membership of unions submitting returns increased to 15,799 in 1950-51 as against 6,820 in 1945-46, *i.e.* by about 132 per cent. The employment in the engineering industry was 78,693 in 1950, which meant that slightly more than 20 per cent of the workers were unionized.

The Engineering Workers' Union, National Engineering Workers' Union, Engineering Mazdoor Sabha and Metal Mazdoor Sabha were the

[1] B. R. Rairikar, op. cit., p. 124.

most important in the industry in Bombay. The Engineering Mazdoor Sabha was affiliated to the Hind Mazdoor Sabha, the Metal Mazdoor Sabha and the Engineering Workers' Union were under communist domination, while the National Engineering Workers' Union was affiliated to the I.N.T.U.C. By 1950, the trade unionism in engineering industry had immensely grown in number, strength, stability and its role. The organisational base was widened and they were gaining strength.

While the total employment in engineering industry increased to 86,025[1] in 1956, the membership of reporting unions was 29,762. It means that slightly less than 35 per cent of the workers were unionized as against 20 per cent in 1950.

The total membership of unions, including non-reporting unions, in the engineering industry from 1957-58 to 1960-61 is given below:—

Year		Membership	Year		Membership
1957-58	..	33,251	1959-60	..	39,327
1958-59	..	30,588	1960-61	..	60,218

These statistics are however exclusive of the membership of the Bombay Labour Union and the General Workers' Union which had some engineering factories affiliated to them, but were mainly general labour unions. It is noteworthy that the union membership increased by more than 100 per cent from 1955-56 to 1960-61, while the increase in 1960-61 over that in 1945-46 was about 900 per cent.

The total employment in engineering industry in Bombay was 115,121 (inclusive of transport group) in 1960, of which 60,218 workers had trade union coverage. It means that nearly 52.39 per cent of the workers were unionized in 1960. Throughout the entire period under reference a greater and greater number of workers were coming under the fold of unionism.

The following table shows the strength of the different Central Unions in the major industries in Greater Bombay in 1960-61.[2] The Central Unions, namely the Hind Mazdoor Sabha, the I.N.T.U.C. and A.I.T.U.C. dominated the engineering industry. The other Central Unions, U.T.W.F. and the Bharatiya Mazdoor Sangh (B.M.S.) had little foothold in the industry.

[1] Lakdawala, op. cit., p. 869.

[2] Compiled from the Annual Report on the Indian Trade Unions Act, 1926, 1960-61.

TABLE No. 17

SHARE OF DIFFERENT NATIONAL FEDERATIONS IN TRADE UNION MEMBERSHIP IN MAJOR INDUSTRIES IN BOMBAY, 1960-61

Federation	Textile	Printing	Chemicals	Engineering
A.I.T.U.C.	26,089 (16.02)	2,954 (45.79)	2,845 (19.05)	12,847 (21.33)
B.M.S.	162 (0.10)	105 (1.58)	....	405 (0.68)
H.M.S.	14,785 (9.08)	1,471 (22.86)	2,986 (19.99)	11,839 (19.66)
I.N.T.U.C.	1,18,916 (73.03)	N.A.	2,891 (19.36)	13,199 (21.92)
Socialist	N.A.	N.A.	....	9,271 (15.39)
Unattached	2,881 (1.77)	1,920 (29.77)	6,215 (41.60)	12,657 (21.02)
Total ..	16,28,33 (100)	6,450 (100)	14,937 (100)	60,218 (100)

Note.—Figures in brackets represent the percentage share of the total membership.

The above statistics bring home the conclusion that the I.N.T.U.C. was the most powerful organisation in engineering industry. However, the difference in membership of H.M.S., I.N.T.U.C. and A.I.T.U.C. was not much. The Engineering Mazdoor Sabha was the largest among the unions in the industry in Bombay, with a membership of 10,505. It was followed by the General Engineering Employees' Union and the Association of Engineering Workers. Since 1950, there was a decline in the incidence of industrial disputes, which might be due to the reference of disputes for arbitration.

Structural Pattern : The structural pattern of engineering unions reflects the industrial unionism as the dominant form. The second important feature of the unions is that there are the city unions in the industry to which the plants are affiliated. Some of these one plant unions are unattached to any organisation. There are also unions covering all the units under one management though all these units do not belong to the engineering industry. There are some general city unions covering the workers from various industries to which some of the units from engineering industries are affiliated; but they are not many. The affiliation of some of the engineering units to ' general unions ' must be due to the attachment to particular leadership. The area of operation of the union is the industrial zone of Bombay-Thane area. Many units have more than one rival

union which is mainly due to existence of four national organisations, which are attached to different political parties. The political rivalries among them weaken trade union activity. Though the unions are city unions, the bargaining is not industry-wise but plant-wise.

Union Management : There is a three-tier system in union management in engineering industry in Bombay. At the bottom is the factory committee of each factory. Members of the city union from each factory elect this factory committee. It consists of as many members as the ratio of the specified number of members for one representative, which varies according to the total membership. The committee is a link between the factory and the city union. It manages and decides all questions pertaining to the factory. It retains part of the income and passes the rest to the city union. There is a managing committee or executive committee above the factory committee which is elected by the latter. The managing committee constitutes the main executive of the union and is responsible for maintaining the organisation. It is this body which secures the vertical co-ordination of the trade union work. At the top of city union is the General Council or the Board of Representatives. It is generally composed of elected representatives of the members from various factories. It wields the power to lay down policies. The management of various unions, though broadly conforms to this pattern, differs from union to union.

The sources of income of a city union are subscriptions received and donations, while the expenditure is on items such as salaries, allowances, office expenses, legal expenses, meetings and propaganda, donations, and welfare of workers. Expenditure on welfare is however very insignificant.

The engineering workers in Bombay are fairly organised. The unions fought the cause of labour through joint negotiations and court proceedings. The employers have also adjusted to the reality of the situation by granting recognition to the unions. The growth of rival and overlapping unions appears to have led to a frittering away of the strength and resources of the movement. Frequent strikes and violence are the other consequences. The movement is yet to emerge out of its agitational stage to blossom into an institution of real strength striving for welfare and productivity of labour.

ACHIEVEMENTS OF LABOUR MOVEMENT[1] (PRE-INDEPENDENCE PERIOD)

The working class of Bombay pioneered the Labour Movement in the country. The weapon of strike was discovered and developed by the Bombay workers themselves, and was very effectively used even before regular trade unions appeared on the horizon. The achievements of

[1] Vasant Gupte, op. cit, p. 135.

the textile strike of 1920 were so "basic and extensive that they are still to be matched by any other similar event".

One of the major achievements of the Bombay labour movement was the reduction in working hours. The hours of work in the initial stages of industrialisation were from sunrise to sunset, and often exceeded 15 hours a day. They were reduced to nine by the end of pre-Independence period. The major credit for this goes to the continuous struggle of the workers, though philanthropists and public luminaries also played a vital role through petitions, journalism and persuasions. The movement greatly influenced the factory legislation from time to time, and also forced the millowners to grant half an hours recess and Sunday as a holiday. During the World War II employers attempted an increase in hours, but workers resisted it through strikes such as the general strike in textile industry in 1941, and ultimately foiled that attempt. The achievement of the strike of 1920 in respect of working hours was spectacular.

The history of labour movement in Bombay is full of struggles for wage increase, though the strategy adopted varied from time to time. During the earlier days of scarcity of labour, the threat of desertion of labour forced employers to increase wages. This period was followed by strikes which compelled employers to increase wages whenever prices soared up. At times the workers had to wage a war against cuts in wages. The wage cuts in the later 1920's led to a series of strikes, the most important among them being the Great Strike of 1928. The two-pronged struggle for wage increase and fight against wage cuts was responsible for considerable rise in wages till mid-nineteen thirties. Wages registered a rise from 1940 because of D.A. linked to the cost of living index which was awarded by the Ranganekar Board of Conciliation. The annual payment of bonus was commenced from 1941. The payment of D.A. and bonus though originally meant for textile industry in Bombay was instrumental to the grant of such benefits to industrial workers in the country.

The average monthly wage in the Bombay textile industry which was Rs. 12.58 in 1901 increased gradually to Rs. 17.01 in 1917 and Rs. 30.75 in 1920 on account of two general strikes. The year 1934 witnessed a cut in wages from Rs. 34.56 to Rs. 27.25, which continued upto 1937. By 1947 the average monthly wage reached a high mark of Rs. 88.50 which also included D.A. and bonus. The wages in other industries were almost in consonance with those in the textile sector.

It is however noteworthy that although the labour movement was instrumental in increasing money wages it could not improve much the standard of living of workers. The real wages of the workers did not improve appreciably. This was particularly true of the war time situation when real wages dwindled even below the 1934 level. During the period 1940-44, although the total net profits of textile mills were estimated

at Rs. 25.27 crores, the index of real wages of workers fell by about 20 per cent.

Besides reduction in working hours and increase in wages, there were many other achievements of the labour movement in Bombay. The textile general strike of 1920 achieved, besides higher wages, employers' acceptance of the obligation to pay compensation for employment injury and to provide medical aid during working hours. As a result of the 1928 general strike, the Fawcett Committee was appointed which was instrumental in formation of rules of work. The rules ensured a great measure of security of job to workers and standardisation of service conditions.

An important achievement of the labour movement was the birth of trade union as an institution for the welfare of workers. The struggle of workers coupled with the leadership of competent trade unionists lent the unions a status, and they became a weapon of collective bargaining.

CONTEMPORARY TRADE UNIONS

The registration of trade unions does not confer any significant right upon them as registration does not entitle them to secure recognition from employers. With the passage of Industrial Disputes Act (1947) a better status has been conferred on a registered union as it enjoys the advantage of machinery set up for the settlement of industrial disputes. Though some criteria and conventions for recognition of unions are set, little progress is achieved as regards their implementation. Since any seven or more persons can register as a trade union, there is a multiplicity of unions. This naturally creates inter-union rivalry and unco-ordinated activity. The Bombay Industrial Relations Act (1946) tried to remove this defect partially by creating a category of "Representative Union" which alone can represent the workers before Industrial Courts. The Bombay Industrial Relations Act (1946) is, however, applicable only to the textile industry, but not to engineering, chemicals and chemical products, pharmaceuticals, petroleum and many other industries. These latter industries are governed by the Industrial Disputes Act of 1947. Hence only the textile industry enjoys the benefit of a representative union, which can safeguard the interests of workers and maintain industrial harmony.

Under the circumstances stated above, as also many other factors inherent in the labour movement in the country, many unions, particularly the plant level unions do not undergo the formalities of registration under the Trade Unions Act of 1926. A number of unions are therefore not registered. Even the registered unions, which are expected to furnish the details regarding membership, office bearers, monetary position etc. to the Registrar of Trade Unions, do not submit their returns regularly, sometimes for years together. Registration of some unions is cancelled while some do not renew their registration. The non-submission of returns,

cancellation of registration and inter-union rivalry are serious handicaps in the study of trade unions.

Under these constraints and limitations, the details of the registered trade unions in the various sections of industries in Bombay are furnished below on the basis of the information made available by the office of the Commissioner of Labour, Government of Maharashtra.[1] The industry-wise information pertains to the year ending with December 31, 1980, and it had its own limitations. It is quite likely that a good many unions may not be covered in this study, though they might have a considerable patronage in Bombay, by virtue of their non-submission of returns to the Labour Office, or their non-registration, etc.

Textile Industry Unions : There were nine registered trade unions in Greater Bombay in December 1980 which represented the cause of the workers in the textile industry. Almost all of them are industrial unions, while none of them can claim to be a craft union. Of the existing registered trade unions in the textile industry, the Rashtriya Mill Mazdoor Sangh was the only union registered in the pre-Independence period. The Mill Mazdoor Sabha was registered just after Independence (October 1947), while the Mumbai Girni Kamgar Union was registered in the late fifties (March 1959). The rest of the existing registered unions were registered in the course of the seventies of this century. It can be deduced from the dates of registration that the Rashtriya Mill Mazdoor Sangh (RMMS), registered on 27th August 1941, is the oldest among the existing unions of textile workers in Bombay. It is also the oldest among the existing registered unions in various industries in Bombay. The other unions registered in earlier years and referred to in previous pages are either extinct or disintegrated or unregistered. As per records, the RMMS claimed the largest membership (1,39,153) in textile mills. The RMMS is affiliated to the INTUC, and is recognised as a representative union for the textile industry under the Industrial Relations Act. By virtue of its status as a representative union it is supposed to be a spokesman of the textile workers, and is under obligation to negotiate and to deal with the Bombay Millowners' Association which plays the role as spokesman and a mouth-piece of the millowners. The RMMS also deals with the owners of individual mills in settlement of disputes. It has political affiliations with the Indian National Congress, the ruling party.

The Mill Mazdoor Sabha, registered on 22 October 1947, is also an old registered union. It had a membership of 17,991 workers in the textile industry in Bombay in 1980. The Mill Mazdoor Sabha is recognised as a representative union for the silk mill industry under provisions of the Industrial Relations Act, and is affiliated to the Hind Mazdoor Sabha.

[1] *Vide* letter dated 22nd August 1982 from office of the Commissioner of Labour, Maharashtra Government.

By virtue of its being recognised as a representative union it is expected to safeguard the interests of the workers in silk industry, and deal with the owners or the Bombay Millowners' Association as the case may be.

The Mumbai Girni Kamgar Union is another important union of textile workers, registered on 2nd March 1959. It enjoyed a membership of 11,442 in 1980 and is affiliated to the All India Trade Union Congress (AITUC). It has political affiliations with the Communist Party of India. The Girni Kamgar Sabha, registered on 31st May 1977, enjoyed a membership of 11,681 in 1980 as per official statistics. This union is not affiliated to any National Federation of trade unions. The Lal Bavta Mill Mazdoor Union is another important organisation of textile workers in Bombay, registered on 2nd October 1971. It had a membership of 4,060 as per official statistics in 1980. This is affiliated to the CITU, and has therefore leanings towards communist ideology.

The other registered unions in textile industry had a comparatively smaller membership. The details of the registered trade unions in the textile industry in Bombay as upto 31st December 1980 are furnished in the following table :—

TABLE No. 18

REGISTERED TRADE UNIONS IN TEXTILE INDUSTRY, GREATER BOMBAY, 31ST DECEMBER 1980

Serial No.	Name and Address	Date of Registration	Membership and Affiliation*	Office Bearers
1	2	3	4	5
1	Mill Mazdoor Sabha, Hindu Colony, Dadar.	22-10-1947	17991 HMS	Pre—Kisan Tulpule GS—D. G. Phatak Tre—A. B. Mulay
2	Rashtriya Mill Mazdoor Sangh, Mazdoor Manzil, Parel Tank Road, Parel.	27-8-1941	139153 INTUC	Pre—Vasant Hoshing GS—A. T. Bhonsle Tre—E. D'souza
3	Mumbai Girni Kamgar Union, Dalvi Building, Parel.	2-3-1959	11442 AITUC	Pre—Bhagvan Thorat GS—Gangadhar Chitnis Tre—D. N. Yelkar
4	Lal Bavta Mill Mazdoor Union, Janashakti, Globe Mill Passage, Bombay-13.	2-10-1971	4060 CITU	Pre—Dinkar Kadav GS—P. K. Kurne Tre—S. T. Koli

* CITU : Centre of Indian Trade Unions.
AITUC : All India Trade Union Congress.
INTUC : Indian National Trade Union Congress.
HMS : Hind Mazdoor Sabha.
BMS : Bharatiya Mazdoor Sangh.
NA : Not Affiliated.

TABLE No. 18—*contd.*

Serial No.	Name and Address	Date of Registration	Membership and Affiliation	Office Bearers
1	2	3	4	5
5	Girni Kamgar Sabha, Mogal Lane, N. M. Joshi Marg, Bombay-11.	31-5-1977	11681 NA	Pre—Namdeorao Ghatge GS—Vishwanath Satam Tre—Dattatraya Rane
6	National Rayon Corpn. Officers' Guild, P. D'Mellow Road, Carnac Bunder, Bombay.	13-4-1972	555 NA	Pre—G. R. Khanolkar GS—E. G. Fernandes Tre—R. S. Sampath
7	Rashtriya Cotton Kamgar General Union, Cotton Exchange Building, Bombay.	20-10-1976	563 INTUC	Pre—Navin Bhagat GS.—Jayaram Rahate Tre—Devendra Joshi
8	Maharashtra State Textile Corporation Employees' Union, Govind Wadi, Andheri.	23-3-1978	61 NA	Pre—Kishor Deshpande GS—S. S. Sawant Tre—M. S. Dabke
9	Bombay Textile Technicians and Officers' Association, Kennedy House, Goregaonkar Road, Bombay-7.	5-6-1980	437 NA	Pre—R. J. Mehta GS—Prakash Phatarphekar Tre—D. T. Keluskar

Engineering Industry Unions: Industrial relations in the engineering industry are governed under the Industrial Disputes Act of 1947. As per official information, there were 14 registered trade unions in this industry in Bombay upto 31st December 1980. Of these nine were industry unions and five plant level unions. As many as five unions including two plant unions were affiliated to the AITUC. Three trade unions including one plant union had affiliation to the INTUC. The Bharatiya Mazdoor Sangh (BMS) and the CITU claimed an affiliation of one registered trade union each. Four of the unions inclusive of two plant unions were not affiliated to any national federation or central trade union. Of the total of 14 unions registered under the Trade Union Act, only one was registered in the pre-Independence period, the rest of them being organised in the post-planning era.

The Engineering Mazdoor Sabha, registered on 20th June 1946, appears to be the oldest among the existing registered trade unions in this industry. This organisation was reported to have a membership of 9,861. It is not

affiliated to any national federation or any political party. The Association of Engineering Workers, registered on 10 October 1958, was however the largest among the registered unions in the industry in Bombay. It enjoyed the membership and patronage of 27,366 workers. It has affiliations to the INTUC and the Congress Party. Next in importance from the point of view of membership on record was the Engineering Workers' Union. It had a membership of 11,146. This organisation is affiliated to the CITU, and believes in communist ideology. The Mahindra and Mahindra Workers' Union, registered on 29 September 1956, was a plant level union enjoying a membership of 5,447 in 1980. It is affiliated to the AITUC. The Kamani Employees' Union is quite an old organisation of workers in the Kamani Engineering Company, registered on 24 December 1951. This union enjoyed a membership of 3,586 workers, and is an independent organisation without being affiliated to any central trade union or political party.

The rest of the trade unions had smaller membership. The details of the registered trade unions in the engineering industry in Bombay as upto 31st December 1980 are furnished in the following table :—

TABLE No. 19

REGISTERED TRADE UNIONS IN ENGINEERING INDUSTRY, GREATER BOMBAY, 31ST DECEMBER 1980.

Serial No.	Name and Address	Date of Registration	Membership and Affiliation	Office Bearers
1	2	3	4	5
1	Engineering Mazdoor Sabha, Kamgar Sadan, Kennedy Bridge, Bombay-7.	20-6-1946	9861 NA	Pre—R. J. Mehta GS—T. V. Nair Tre—B. D. Makaji
2	Kamani Employees' Union, opp. Premier Automobile, Kurla.	24-12-1951	3586 NA	Pre—Y. V. Chavan GS—S. B. Pathare Tre—K. N. Karwara
3	General Engineering Employees' Union, Poibawdi, Parel.	12-10-1954	787 AITUC	Not available
4	United Siemens' Union of India, Dongri.	31-3-1956	Not given AITUC	Pre—M. N. Yusufi GS—Abdul Wahab Tre—Bawa Miyab
5	Mahindra and Mahindra Workers' Union, S. V. Road Kandivli West.	29-9-1956	5447 AITUC	Pre—S. B. Salvi GS—B. S. Dhume Tre—R. D. Nadkarni
6	Association of Engineering Workers, Janata Colony, Ghatkopar.	10-10-1958	27366 INTUC	Pre—Datta Samant GS—T. S. Borade Tre—B. S. Talekar

TABLE No. 19—*contd.*

Serial No.	Name and Address	Date of Registration	Membership and Affiliation	Office Bearers
1	2	3	4	5
7	Engineering Mazdoor Sangh, Rajan Building, Poibawdi, Parel.	16-2-1960	417 BMS	Pre—Raman Shah GS—P. R. Keluskar Tre—K. R. Desai
8	Engineering and Metal Workers' Union, S. V. Road, Andheri.	3-11-1964	1680 AITUC	Pre—V. Kamble GS—B. S. Dhume Tre—S. D. Nalawade
9	Engineering and General Workers' Union, Akurli Road, Kandivli (East).	22-8-1969	717 AITUC	Pre—S. R. Jagtap GS—B. R. Shivankar Tre—A. R. Nadkarni
10	Maharashtra Engineering, Plastic and General Kamgar Union, Anand Wadi, Malad (E).	20-3-1970	386 NA	Pre—T. Upadhyay GS—R. R. Mishra Tre—B. R. Mishra
11	Engineering Workers' Union, Janashakti, Globe Mill Passage, Bombay-13.	21-10-1970	11146 CITU	Pre—S. Y. Kolhatkar GS—K. L. Bajaj Tre—P. M. Vartak
12	Premier Automobiles Mechanite Foundry Employees' Union, opp. Sarvodaya Hospital, Ghatkopar.	12-2-1973	246 INTUC	Pre—Not available GS—G. P. Galgali Tre—Not available
13	Mukund Staff and Officers' Association, C/o Kamani Employees' Union, Kurla.	20-6-1973	1039 NA	Pre—Y. V. Chavan GS—S. K. Rajan Tre—A. N. Chakravarti
14	Engineering and Metal Employees' Union, opp. Sarvodaya Hospital Ghatkopar.	31-7-1976	138 INTUC	Pre—G. P. Galgali GS—S. K. R. Iyengar Tre—R. K. Shah

Chemical Products Industry Unions : There were six registered trade unions in the chemicals and chemical products industry in Bombay as on 31st December 1980. All of these unions were registered in the post-Independence period. This could be attributed to the fact that the growth of the industry was accelerated only in the post-Independence period. It is a salient feature of the industry that it enjoys a happier position as regards industrial peace and unionism.

Of the six registered unions, three were industry level unions, while the rest of the three were plant level unions. Three unions were affiliated to central unions, one each to the AITUC, the INTUC and the HMS, whereas three organisations including two plant level unions were not

affiliated to any central union or any political party. One of the plant level unions, namely, Hindustan Organic Chemicals Employees' Union, although registered in Bombay, represented the workers of the public sector undertaking at Rasayani on the outskirts of Bombay Metropolitan Region.

The Dyes and Chemical Workers' Union, registered on 16th September 1947, was by far the largest organisation enjoying a membership of 5,608 workers. It is affiliated to the AITUC and believes in communist ideology. The Chemical Mazdoor Sabha, registered on 30th August 1947, is the oldest among the existing registered unions in this industry. It had a membership of 2,863 in 1980 and is affiliated to the Hind Mazdoor Sabha.

The details of the registered trade unions in this industry in Bombay as upto 31st December 1980 are furnished below:—

TABLE No. 20

REGISTERED TRADE UNIONS IN CHEMICAL INDUSTRY, GREATER BOMBAY, UPTO 31ST DECEMBER 1980

Serial No.	Name and Address	Date of Registration	Membership and Affiliation	Office Bearers
1	2	3	4	5
1	Chemical Mazdoor Sabha, Satyagiri, Dadar.	30-8-1947	2863 HMS	Pre—Kisan Tulpule GS—V.A.Khanolkar Tre—G. Vasy
2	Dyes and Chemical Workers' Union, Dalvi Building, Poibawdi, Parel.	16-9.1947	5608 AITUC	Pre—Not given GS—Not given Tre—Not given
3	Chemical Employees' Union, Kennedy House, Goregaonkar Road, Bombay-7.	21-1-1950	1636 NA.	Pre—R. J. Mehta GS—Prakash Phatarphekar Tre—Bharat Mulik
4	Glaxo Laboratories Employees' Union, C/o Glaxo Laboratories, Worli.	20-2-1951	2117 NA	Pre—V. M. Verghese GS—P. A. Rao Tre—K. R. Bhende
5	Mindia Chemicals Employees' Union, 5th Road, Khar (W).	20-3-1978	182 NA	Pre—G.R. Khanolkar GS—Not available Tre—A. K. Desai

Pharmaceuticals Industry Unions : Six unions of pharmaceuticals industry workers were reported to be registered in Bombay as upto 31st December 1980. The Glaxo Laboratories Employees' Union registered in February 1951 was shown under the chemical industry as per the returns from the Commissioner of Labour. It had a larger membership

than any other union in the pharmaceuticals industry in Bombay. All the unions except one were plant unions. The All India Pharmaceutical Employees' Union with a membership of 1,455 was the only general industry union which was affiliated to the AITUC. The May and Baker Employees' Union was another organisation which was affiliated to a central trade union, namely, CITU. The rest of the four trade unions had no affiliation to a central trade union or a political party. Trade unionism in the pharmaceuticals industry is still in its infancy, and its history dates back to October 1955 when the Parke Davis Employees' Union was registered. The other unions were registered in the sixties. This was in conformity with the accelerated growth of the industry in the planning period.

The details of registered trade unions in this industry in Greater Bombay as upto 31st December 1980 are furnished in the table below:—

TABLE No. 21

REGISTERED TRADE UNIONS IN PHARMACEUTICALS INDUSTRY, GREATER BOMBAY, DECEMBER 1980

Serial No.	Name and Address	Date of Registration	Membership and Affiliation	Office Bearers
1	2	3	4	5
1	Parke Davis Employees' Union, Saki Naka, Bombay-72.	14-10-1955	809 NA	Pre—A. K. Chakradev GS—V. G. Ajgaonkar Tre—A. D. Mungekar
2	All India Boots Pure Drug Employees' Union, Sion.	29-3-1961	936 NA	Pre—B. S. Chitre GS—Rajmani Singh Tre—G. P. Shetty
3	May and Baker Employees' Union, Sion.	7-10-1961	969 NA	Pre—N. R. Shithankar GS—G. M. Coutinho Tre—J. J. Gharat
4	Hoechst Employees' Union, Khetan Bhuvan, J. M. Tata Road, Bombay-20.	14-3-1964	1093 NA	Pre—M. S. Irani GS—A. W. Naronha Tre—D. Dutt
5	All India Pharmaceutical Employees' Union, Shramjivi Awaj, Sewri.	9-5-1964	1455 AITUC	Pre—S. N. Junnarkar GS—Roza Deshpande Tre—B. G. Singh
6	Franco Indian Employees' Union, C/o Franco Indian Pharma, E. Moses Road, Bombay-11.	13-12-1968	334 NA	Pre—A. D. Poojari GS—Madan Phadnis Tre—S. K. Bangera

Petroleum Industry Unions : The growth of the petroleum industry is comparatively of recent origin. Naturally trade unionism found a congenial home in the industry only in recent years. The Commissioner of

Labour reported seven registered trade unions in this industry in Bombay as upto 31st December 1980. The Petroleum Workmen's Union, registered on 11th October 1949, is by far the oldest among the existing organisations. With a membership of 890, it was affiliated to the AITUC. The Petroleum Employees' Union, registered on 18th November 1954, was however the biggest union with a membership of 2,109. It is affiliated to the INTUC under leadership of congressmen. The other unions which were quite smaller in size were independent, and had no affiliation or attachment to central trade unions or political parties. The Bharat Petroleum Corporation had three unions, one each of process technicians, management staff and refinery personnel.

The information about the registered trade unions in petroleum industry in Bombay as upto 31st December 1980 is furnished in the following table:—

TABLE No. 22

REGISTERED TRADE UNIONS IN PETROLEUM INDUSTRY, GREATER BOMBAY, DECEMBER 1980

Serial No.	Name and Address	Date of Registration	Membership and Affiliation	Office Bearers
1	2	3	4	5
1	Petroleum Workmen's Union, Sewri.	11-10-1949	890 AITUC	Pre—B. S. Dhume GS—P. S. Desai Tre—T. S. Panickar
2	Petroleum Employees' Union, Golanji Hill Road, Sewri.	18-11-1954	2109 INTUC	Pre—Raja Kulkarni GS—C. N. Shirali Tre—K. N. Krishnan
3	Bharat Petroleum Corporation, Process Technicians and Analysts' Union, L. Techcians, H. No. 4, Block No. 8, Mulund Colony.	14-6-1963	144 NA	Pre—S. K. Hinduja GS—P. M. Kulkarni Tre—G. B. Venkatraman
4	Hindustan Petroleum Management Staff Association, Bhulabhai Desai Road, Bombay-26.	17-8-1970	607 NA	Pre.—H. R. Handa GS—G. M. Kannamwar Tre—R. G. Nayak
5	Bharat Petroleum Corporation, Management Staff Association (Refining Division) C/o. Bharat Petroleum Refineries Site, Bombay-74.	5-8-1978	125 NA	Pre—M. L. Mattoo GS—M. M. Rao Tre—P. S. Raghavan
6	Bombay Petrol Pumps and General Workers' Union, New Mill Road, Kurla.	2-5-1979	269 NA	Pre—S. A. Dube GS—P. B. Goankar Tre—R. B. Yadav

TABLE No. 22—*contd.*

Serial No.	Name and Address	Date of Registration	Membership and Affiliation	Office Bearers
1	2	3	4	5
7	Bharat Petroleum Corporation Limited (Refinery), Employees' Union, Tilak Nagar, Chembur.	6-2-1980	737 NA	Pre—M. L. Punjabi GS—P. O. Verghese Tre—U. V. Pai

Electrical Engineering Unions : There were only two registered unions reported from the industry. One of them was registered on 3rd February 1971, while the other on 6th December 1975, its office bearers being H. N. Trivedi, M. K. Shenoy and V. S. Mathews. Both the trade unions were independent of national federations of unions.

Transport Workers' Unions : Trade unionism in the transport industry appears to be dominated by the Hind Mazdoor Sabha to which are affiliated five of the eight registered unions. The organisations of workers affiliated to the Hind Mazdoor Sabha which had a large following are supposed to be notable. They had together a membership of 84,934 workers in Bombay, while the three other trade unions had a total membership of only 1,143 in December 1980.

The Maritime Union of India is the oldest among the existing registered trade unions in this industry in Bombay. It was registered on 30th March 1941. It had a membership of 6,816 in 1980, and is affiliated to the HMS. Another union registered in the pre-Independence period is the B.E.S.T. Workers' Union registered on 10th July 1946. It had a membership of 21,425 workers, and is affiliated to the HMS. The Transport and Dock Workers' Union, registered on 15th May 1968, is however the biggest among the transport workers' unions in Bombay. It enjoyed a membership of 26,137 workers in 1980, and is affiliated to the HMS. The Bombay Port Trust Employees' Union and the National Union of Seafarers which enjoyed a membership of 12,476 and 18,080 workers, respectively in 1980, are also very important unions with a status in the working class in this metropolitan city. Both these unions under common leadership are affiliated to the Hind Mazdoor Sabha.

The transport workers unions, though not organisations of factory workers as such, have had a great impact on the labour movement in metropolitan Bombay. Industrial peace in the transport sector is vital for a healthy economic and social life in the City. Industrial disputes and stoppages of work by transport workers hampers normal life and production in the City. The transport workers' unions are also among the well organised trade unions in Bombay.

The information about transport workers' unions in Greater Bombay as upto 31st December 1980 is given below:—

TABLE No. 23

REGISTERED TRADE UNIONS OF TRANSPORT WORKERS, GREATER BOMBAY, DECEMBER 1980

Serial No.	Name and Address	Date of Registration	Membership and Affiliation	Office Bearers
1	2	3	4	5
1	Maritime Union of India, National Insurance Building, Hornby Road, Fort.	30-3-1941	6,816 / HMS	Pre—C. F. Delima GS—K. P. Kolah Tre—B. R. Fernandes
2	B.E.S.T. Workers' Union, 42, Kennedy Bridge, Bombay.	10-7-1946	21,425 / HMS	Pre—George Fernandes GS—N. A. Phenany Tre—F. D. Nazreth.
3	Bombay Port Trust Employees' Union, Kamgar Sadan, Mazagaon.	11-12-1952	12,476 / HMS	Pre—Shanti Patel GS—S. K. Shetty Tre—R. S. Pawaskar
4	Transport and Dock Workers' Union, P. D'Mello Bhavan, Carnac Bunder.	15-5-1964	26,137 / HMS.	Not available
5	National Union of Seafarers', Goa Street, Bombay-1.	28-2-1955	18,080 / HMS	Pre—Shanti Patel GS—Dr. Leo Barnes
6	State Transport Employees' Association, Vahatuk Bhavan, Bombay-8.	10-3-1969	97 / INTUC	Pre—A. N. Kulkarni GS—P. G. Ranade
7	B.E.S.T. Officers' Association, B.E.S.T. House, Bombay-5.	7-10-1972	478 / N. A.	Pre—G. S. Nadkarni GS—Not available Tre—K. P. Shirsekar
8	State Transport Officers' Association, Vahatuk Bhavan.	27-6-1980	568 / N. A.	Pre—M. G. Phadtare GS—S. M. Shitole Tre—S. B. Bhoyar

The Mathadi Workers' Union, information for which is not available, has a large following. The organisations of white collar workers have also emerged in recent times. Since many of them are primarily on an All India basis, the account of their activities has not been covered in this volume. Organisations of Government servants have come up in recent times. The above survey does not cover a good many such unions. Many unions are found to revolve around personalities. A strong person dominates the union. He determines its policies and actions. The union becomes known as his union, though it might be affiliated to some organization. The workers look up to him to secure their demands and

champion their cause. Many such unions are associated with the names of Datta Samant, George Fernandes, Bal Thakare, Mahadik, Datta Salvi, Shanti Patel, S. R. Kulkarni, Vasant Hoshing, Bhai Bhosale, Anna Patil, Narayan Phenany, Roza Deshpande, Kurne, Dhume, Raja Kulkarni, K. T. Sule, Jagannath Jadhav, Kishore Deshpande, S. Y. Kolhatkar, Chitnis, Somnath Dube, Sanzgiri, Khanolkar, Vasant Tulpule, R. J. Mehta, P. K. Sawant, Patkar, R. G. Karnik and many others. The Bharatiya Kamgar Sena, a trade union wing of the Shiv Sena, also has gained a strong foothold in the labour movement in Bombay during the last few years.

The study of trade unions and labour movement in Bombay will not be complete without the mention of a galaxy of men of merit of the earlier generation who distinguished themselves in the cause of labour—Alvares, Ambekar G. D., Bakhale R. R., Baptista, Dange S. A., P. D'Mello, Dinkar Desai, Deshpande S. V., Jhabvala, Joglekar K. N., Joshi N. M. (died in 1955), Joshi S. M., Karnik V. B., Kotwal Manohar, Ashok Mehta, Purshottamdas Trikamdas, Ginwala, Nare, Bole, Jamnadas Mehta, Mirajkar S. S., Nimbkar R. S., Nath Pai, Ranadive B. T., Roy M. N., Thengadi D. R., Thengadi Dattopant, Tulpule Bagaram, etc. etc.

INDUSTRIAL DISPUTES

In the nature of things industrial peace is disturbed on several occasions giving rise to industrial disputes. There are several reasons for the incidence of such disputes, the principal reasons being pay and allowances, conditions of work, discipline, bonus, leave and hours of work recognition of union, retrenchment, etc. At times the disputes take place not for any economic demand but for some extraneous considerations, clash of vested interests of union leaders, political reasons or ambitions of leaders for personal gains. The Government have established a machinery for settlement of industrial disputes under various legislative measures. Accordingly cases of disputes are referred to concerned bodies for conciliation, arbitration and adjudication. The labour and industrial courts play an important role. The entire problem of industrial disputes is, however, a multiple phased problem which defies solution quite often, and disputes do take place resulting into disturbance of industrial peace.

The statistics of the various aspects of industrial disputes in Bombay from 1930 to 1947 are given in Table Nos. 24 to 29, while Table No. 30 gives the statistics of industrial disputes for the textile industry, engineering industry and miscellaneous industries for the period from 1950 to 1970 and for the year 1980.[1] The statistics are self-explanatory and need no comments.

[1] Vasant Gupte, op. cit., pp. 162-68.

TABLE No. 24

INDUSTRIAL DISPUTES IN BOMBAY CITY (1930-47)

Year		Spinning and Wvg.	Metal and Engineering	Others	Total
1930	..	27	1	15	43
1931	..	14	2	2	18
1932	..	11	2	12	25
1933	..	35	..	7	42
1934	..	26	..	4	30
1935	..	9	..	11	20
1936	..	6	..	5	11
1937	..	24	2	15	41
1938	..	31	4	21	56
1939	..	31	13	17	61
1940	..	22	8	27	57
1941	..	21	10	36	67
1942	..	38	19	52	109
1943	..	37	31	63	131
1944	..	34	28	90	152
1945	..	65	45	93	203
1946	..	179	50	132	361
1947	..	203	79	189	471

TABLE No. 25

NUMBER OF WORK PEOPLE INVOLVED IN DISPUTES (1930-47)

Year		Spinning and Wvg.	Metal and Engineering	Others	Total
1930	..	36,407	175	27,521	64,103
1931	..	22,015	3,892	310	26,217
1932	..	6,745	3,405	3,947	14,097
1933	..	42,777	....	942	43,719
1934	..	1,13,592	....	1,450	1,15,042
1935	..	8,668	....	1,051	9,719
1936	..	10,515	....	746	11,261
1937	..	35,581	155	4,062	39,798
1938	..	24,436	537	2,415	27,378
1939	..	20,624	1,111	1,879	23,614
1940	..	1,88,397	6,528	3,284	1,98,209
1941	..	32,562	11,385	12,335	56,182
1942	..	70,913	26,347	23,307	1,20,567
1943	..	58,442	16,499	28,403	1,03,344
1944	..	60,704	46,316	36,438	1,43,458
1945	..	71,688	57,385	43,884	1,72,957
1946	..	4,14,691	85,102	78,786	5,78,579
1947	..	4,36,219	99,147	70,908	6,06,274

TABLE No. 26

NUMBER OF WORKING DAYS LOST (1930-47)

Year		Spinning and Wvg.	Metal and Engineering	Others	Total
1930	..	1,54,640	525	9,03,872	10,59,037
1931	..	2,08,955	17,666	7,460	2,34,081
1932	..	1,67,348	38,961	11,958	2,18,267
1933	..	3,48,553	....	8,258	3,56,811
1934	..	32,04,322	....	3,917	32,08,239
1935	..	66,299	....	4,645	70,944
1936	..	1,72,203	....	19,712	1,91,915
1937	..	1,47,159	2,416	42,679	1,92,254
1938	..	1,22,914	867	13,204	1,36,985
1939	..	94,456	14,248	14,217	1,22,921
1940	..	45,91,790	20,516	27,423	46,39,729
1941	..	89,043	96,316	80,370	2,65,730
1942	..	2,86,173	2,23,625	2,43,071	7,52,869
1943	..	3,02,034	51,526	94,305	4,47,865
1944	..	3,19,186	1,22,715	2,06,705	6,48,606
1945	..	4,16,202	1,96,130	2,02,204	8,14,536
1946	..	14,02,275	5,03,204	3,53,756	22,59,235
1947	..	22,77,132	4,33,852	5,39,319	32,50,303

TABLE No. 27

DISPUTES IN BOMBAY BY CAUSES (1930-47)

Year		Pay and Allowances	Conditions of work, discipline, personal etc.	Bonus	Others includin leave and hours	Total
1930	..	18	10	1	14	43
1931	..	8	5	..	5	18
1932	..	16	9	..	..	25
1933	..	26	14	..	2	42
1934	..	18	10	..	2	30
1935	..	8	9	..	3	20
1936	..	4	5	..	2	11
1937	..	25	8	1	7	41
1938	..	32	19	..	5	56
1939	..	40	18	..	3	61
1940	..	44	9	..	4	57
1941	..	50	11	..	6	67
1942	..	55	12	27	15	109
1943	..	57	16	26	32	131
1944	..	77	23	20	32	152
1945	..	64	40	51	48	203
1946	..	140	70	28	123	361
1947	..	171	120	74	106	471

TABLE No. 28

DISPUTES IN BOMBAY BY RESULTS (1930-47)

Year	Entirely favourable to workers	Partially favourable to workers	Entirely unfavourable to workers	Inconclusive, indeterminate, indefinite etc.	In Progress	Total
1930 ..	14	3	22	3	1	43
1931 ..	5	4	8	1	..	18
1932 ..	5	7	11	1	1	25
1933 ..	5	1	29	4	3	42
1934 ..	4	5	20	1	..	30
1935 ..	6	..	14	..	..	20
1936 ..	2	4	3	2	..	11
1937 ..	8	10	21	1	1	41
1938 ..	3	19	32	2	..	56
1939 ..	13	19	24	3	2	61
1940 ..	14	13	27	2	1	57
1941 ..	6	15	43	1	2	67
1942 ..	13	26	65	2	3	109
1943 ..	15	48	65	3	..	131
1944 ..	19	39	81	10	3	152
1945 ..	21	37	104	32	9	203
1946 ..	44	67	187	57	6	361
1947 ..	66	57	252	84	12	471

TABLE No. 29

DISPUTES IN BOMBAY BY DURATION (1930-47)

Year	One day	2-5 days	Over 5 days	Total
1930 ..	7	19	17	43
1931 ..	..	6	12	18
1932 ..	..	7	17	25
1933 ..	2	12	28	42
1934 ..	3	12	16	31
1935 ..	1	7	12	20
1936 ..	1	2	8	11
1937 ..	2	21	18	41
1938 ..	10	26	20	56
1939 ..	9	24	28	61
1940 ..	12	19	26	57
1941 ..	12	33	22	67
1942 ..	16	51	42	109
1943 ..	21	63	47	131
1944 ..	41	72	39	152
1945 ..	62	77	64	203
1946 ..	126	130	105	361
1947 ..	130	186	155	471

TABLE No. 30

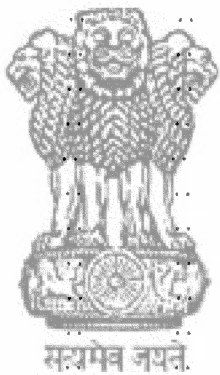
INDUSTRIAL DISPUTES ACCORDING TO INDUSTRIES IN BOMBAY, 1950, 1970 AND 1980

Year	Textile			Engineering			Miscellaneous			Total		
	No. of disputes	No. of workers involved	No. of man-days lost	No. of disputes	No. of workers involved	No. of man-days lost	No. of disputes	No. of workers involved	No. of man-days lost	No. of disputes	No. of workers involved	No. of man-days lost
1950 ..	66	2,88,659	97,68,457	35	25,345	122,447	70	25,759	65,140	171	3,39,763	99,56,044
1951 ..	91	88,833	5,40,751	31	26,232	85,722	94	38,301	1,97,371	216	1,53,366	8,23,844
1952 ..	67	71,178	2,92,993	23	15,132	43,618	77	18,279	64,397	167	1,04,589	4,01,008
1953 ..	44	65,305	3,31,394	38	21,044	1,25,301	43	10,453	21,478	125	96,802	4,78,443
1954 ..	36	32,617	1,83,632	36	33,369	84,464	64	24,807	38,886	136	90,793	3,06,984
1955 ..	56	43,524	1,27,307	27	8,853	30,787	92	31,254	1,09,613	175	83,631	2,67,607
1956 ..	87	1,29,099	2,71,187	50	34,806	1,03,335	65	26,233	77,202	202	1,90,138	4,51,724
1957 ..	66	58,899	1,64,320	36	19,047	1,13,068	76	33,849	1,18,465	178	1,11,795	3,95,853
1958 ..	35	30,680	47,439	22	15,704	4,55,007	83	66,439	5,17,773	140	1,22,823	10,20,219
1959 ..	43	66,928	1,79,802	38	49,215	1,67,752	98	22,462	84,353	179	1,38,605	4,31,907
1960 ..	31	85,266	1,41,309	38	30,044	1,72,084	114	1,22,475	5,23,478	183	2,37,785	8,36,871
1961 ..	17	12,884	26,819	41	9,154	90,773	143	41,864	3,21,093	201	63,902	4,38,685
1962 ..	53	60,964	1,73,022	54	7,990	1,12,282	194	1,76,926	6,94,889	301	2,45,880	9,80,193
1963 ..	47	80,704	1,81,160	89	17,028	1,53,732	198	67,805	4,27,808	334	1,65,597	7,62,700
1964 ..	46	59,464	2,09,785	111	26,930	2,33,605	246	85,102	5,08,594	403	1,71,496	9,51,984
1965 ..	51	3,87,295	4,08,676	116	21,396	1,85,558	212	58,976	3,43,302	379	4,67,667	9,37,536
1966 ..	56	2,43,087	20,39,857	161	28,282	2,56,174	256	73,581	5,20,156	473	3,44,950	8,16,187
1967 ..	39	26,865	86,312	157	41,263	5,47,636	218	77,984	8,54,624	414	1,46,112	14,88,572
1968 ..	14	14,288	61,064	139	36,968	4,84,743	177	54,251	5,65,992	330	1,05,507	11,11,799
1969 ..					Not available							
1970 ..	60	1,64,062	5,26,707	142	32,081	3,53,518	188	70,878	5,52,085	390	2,67,021	13,32,310
1980 ..	80	1,03,323	1,87,337	102	37,933	2,87,204	53	7,287	67,237	235	1,48,543	5,41,778

TABLE No. 31

NUMBER OF TRADE UNIONS AND T. U. MEMBERSHIP IN BOMBAY CITY (1922-47)

Year (December end)	Number of Trade Unions	Trade Union Membership
1922	9	24,000
1923	8	25,013
1924	9	22,851
1925	10	22,598
1926	22	47,068
1927	32	59,489
1928	45	160,787
1929	52	159,699
1930	45	88,537
1931	44	59,327
1932	45	68,285
1933	46	69,161
1934	45	70,198
1935	60	71,295
1936	51	53,779
1937	57	63,711
1938	67	90,710
1939	78	121,388
1940	82	128,634
1941	84	116,854
1942	90	124,243
1943	100	138,882
1944	117	166,254
1945	140	198,383
1946	193	212,977
1947	279	295,685



(Compiled from the issues of *Bombay Labour Gazette*.)

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CHAPTER 6—BANKING, TRADE AND COMMERCE

INTRODUCTION

THE CITY OF BOMBAY HAS A LONG HISTORY AS a centre of banking and trade. Now, Bombay is considered as the largest trading and distributing centre in the country and is the abode of almost all the financial institutions with either their head-offices or branch-offices in Bombay. An attempt is therefore made in the present chapter to depict the development of Bombay from a small island to its present position as one of the largest financial and trading centres.

The present chapter for the sake of convenience is divided into two sections *viz.*, (1) Banking and Finance, and (2) Trade and Commerce.

In the first section are described the various financial institutions that cater to the requirements of the economy. They include such agencies as money-lenders, joint-stock banks, co-operative societies, the Life Insurance Corporation, joint-stock companies, small savings movement, State-aid to industries and other State sponsored financial institutions.

Of these, the money-lenders and the indigenous bankers are the traditional institutions which played an important role in the credit supply mostly to the people of urban areas. The establishment of banks and their development on modern lines is a later phenomenon. The earliest bank in Bombay was established as early as in 1720. The development of financial organisations and institutions in Bombay began during the 19th Century. Until the establishment of the Bank of Bombay in 1840, the banking business in Bombay was carried on by about hundred Hindu shroffs who were the traditional indigenous bankers. But the excessive rates of interest charged by them and the malpractices adopted to exact money from the poor proved detrimental to the economic well-being of the people in the past. In order to check the prevailing malpractices, the then Government of Bombay State passed the Bombay Money-lenders Act of 1946. Another important event that eventually undermined the influence of money-lenders was the gradual rise of the modern joint-stock banks. After the World War II, and especially after Independence, the banks have considerably expanded their scope of activity by way of liberal policy of credit and also by their policy of branch expansion.

Development in the field of banking was accompanied by a still greater development in the field of co-operation. A large net-work of co-operative

societies is spread all over the city and includes industrial and service co-operatives, housing societies, etc.

These financial institutions, in addition to purveying credit to all classes of people in Bombay, also collect the savings of the people in the form of premia and invest them in the interest yielding securities. The insurance and joint-stock companies need in this context a specific mention. The post-war period experienced a remarkable progress in the case of both these categories. Besides, in 1945, the small savings movement was started with the intention of mopping up purchasing power to fight the inflationary forces set in motion by the war, and later it was adopted by the Planning Commission as an important means to finance the development schemes included in the Five-Year Plans.

The role of Government in the field of finance and other fields of economic activities is also discussed in this chapter. Thus, the first section describes in detail the banking and financial institutions in the district in their historical and structural aspects.

In the second section of the chapter are discussed the structure, direction as also the quantum and value of trade and commerce in the district. In fact, the banking set-up in Bombay has significant bearings on the pattern and organisation of trade and commercial activities. The growth of banking and various financial institutions and increasing facilities of transport and communications have contributed immensely to the growth of trade in Bombay. The State Trading Corporation, State Marketing Federation, Export Promotion Councils, and many other agencies also help the trading activities in Bombay. As such the second section describes all types of trading activities such as forward trading, wholesale and retail trading, regulated and co-operative marketing, as also inland and foreign trade undertaken in Greater Bombay. Besides, it also includes narration of trade-routes which are responsible for growth of trading activities.

SECTION I—BANKING AND FINANCE

GOVERNMENT MINT

After the transfer of Bombay Island to the East India Company, several schemes including a plan for establishment of English currency were considered. In 1670-71 the Court of Directors recommended establishment of a mint at Bombay for coining gold, silver and copper coins. In 1675, President Aungier also put forward his suggestion for the establishment of a mint. On 15th October 1676, the King by Letters of Patent empowered

the Company to establish a mint at Bombay and permitted them to coin moneys of gold, silver, copper, tin, lead or any metal. Accordingly, the grant of privilege was intimated by the Company in 1677 and a Rupee was struck at Bombay bearing the Royal Arms and the legend, " By authority of Charles the Second ".

During the first half of the 18th century a considerable quantity of silver rupees of varying coinage and alloy and of a value inferior to the standard of the Bombay and Surat rupees used to be brought to Bombay from outside. Persons were appointed at the Land Pay Office to exchange rupees for pice at the rate of 80 pice for a rupee. Due to scarcity of copper, the local authorities coined tutenag pice to the value of Rs. 2,000. This coin was however, discontinued in 1773. For the want of small currency, half and quarter pice to the value of Rs. 10,000 were coined. Great scarcity of silver which prevailed on the Bombay Island in the middle of eighteenth century led to the establishment of gold currency in 1765. The resolution passed in 1767 equalised the standard of Surat rupees with that of Bombay rupee. In 1774, the rupees coined at Broach were again admitted as current in Bombay.

In 1775 owing to the want of silver currency gold was coined to the amount of Rs. 60,000 in pieces of the value of one silver rupee each to be in fineness exactly equal to the gold rupees then in circulation and of 1/15th part of the weight of a gold rupee. However, in 1778 the issue of gold coin was stopped.

The old Bombay rupee was identical with that coined at Surat under the Mughal Government. It weighed 178.314 grains and contained 1.24 per cent of alloy. As the Nawab of Surat did not observe the agreement with the Bombay Government, all the Bombay rupees were carried to Surat to be re-coined, and the Bombay mint ceased to coin silver for more than 20 years. In 1800, however Government ordered the Surat rupee to be struck in Bombay and from that date the rupee was maintained at an equal value in both the mints. It weighed 179 grains and contained 7.97 per cent. of alloy.

According to the order of 1800, in the Bombay coins 15 grains of silver represented one of gold. A scarcity of rupees in 1801 was responsible for the introduction of new gold coin as a circulating medium. In 1815, the Government ordered abolition of Surat Mint and decided that whole coinage of the Presidency should be conducted at the Bombay Mint. In 1827, the copper pie was introduced which weighed $33\frac{1}{3}$ grains and was equal to one-twelfth of an anna.

The coinage of India was made uniform in 1835. The East India Company's rupee was ordered to take the place of the *Sicca* rupee. However there was a difference between *Sicca* rupee and the Company's rupee

as the former contained 8 per cent more silver than the latter. In 1841, a two anna silver piece was introduced and a proclamation was issued regulating the gold coinage. According to this proclamation the gold coins were to bear on the obverse the head of Queen Victoria and on the reverse– a lion and a palm tree with the designation "East India Company". In 1844, a change was made in the device on copper coinage issued from Bombay mint.

In 1857, the sub-divisions used in the public and other accounts were rupees, annas and pies. One gold mohur was equal to 15 silver rupees; one rupee equal to 16 copper annas; one anna equal to 4 pice; and 1 pice equal to 3 pies. However, many mercantile houses and traders retained the old sub-divisions of rupees, quarters and reas. Although the gold mohur and copper anna formed sub-divisions in the scheme of the British Indian currency, those coins were not current.

Upto the year 1893, the operations of the Indian Mints were regulated by the Coinage Acts, *viz.*, Act XVII of 1835, Act XIII of 1862, and Act XXIII of 1870. These Acts provided for the free coinage of gold and silver for the public and for the coinage of copper for Government regiments. There was no great demand for a gold coinage. But public took full advantage of the free coinage of silver. Under the terms of the Coinage Acts in force upto 1893, any person tendering silver to the mint to the amount of 1,000 tolas and over was entitled to have it coined into rupees on payment of a seignorage charge of Rs. 21 for every 1,000 rupees of outturn produced by his tender.

In June 1893 the Indian Mints were closed to the free coinage of gold and silver and since that date no rupees were coined except on Government account.

In 1895 an agreement was effected between the Government of India and two of the local Exchange Banks for the coinage of a British dollar at the Bombay Mint for circulation in the Straits Settlements and Hongkong. The agreement ceased in 1903 when the Government of the former colony issued a new coin called The Straits Settlements Dollar for circulation in their territories. The coinage of the rupee with the effigy of King Edward VII was commenced in January 1903.

Experiments were undertaken in 1905-6[1] for the manufacture of Cupro-nickel one anna piece with a view to obtaining a coin distinctive in shape from any existing coins current in British India. The minting of this coin began in 1906-07 and the first issues to the public were made from 1st August 1907.

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[1] *Bombay Mint, 150th Anniversary Celebration, 1st May 1982*, published by Bombay Mint.

After George V came to the throne in 1910, coins were issued in his name. There was a tiny elephant on the design of the mail of his effigy on one rupee coin. The Government had to stop minting of these coins as there was wide-spread resentment among the members of one community in India, as this elephant looked like a pig.

Indian coins were issued in the name of George VI when he was crowned in May 1937.

The coins of quaternary silver alloy were introduced from 1940 in place of standard silver. Due to inadequate supplies of silver and the high prices of this metal prevailing in India, it was decided in 1946-47 to discontinue minting rupees, half-rupees and quarter-rupees, in quaternary silver alloy coins as they contained silver, and instead coins in pure nickel were introduced. These coins came into circulation in 1947.

After January 26, 1950 the effigy of the English monarch on the obverse was replaced by the Ashoka Pillar. From 1950-57 different figures appeared on the reverse of the coins. On one rupee, half-rupee and quarter-rupee coins there were ears of corn ; on two annas, one anna and half an anna coins there was a bull ; and on one paisa there was a flying horse.

India adopted the decimal system of coinage from April 1, 1957. The lowest denomination in decimal coinage system as adopted in India is one paisa, and one hundred paise makes one rupee. Initially this paisa was called Naya Paisa to distinguish it from the old paisa. The prefix " Naya " was dropped from 1963. All the coins of decimal series bear the Ashoka Pillar on the obverse side with letters ' Bharat ' in Devanagri and ' India ' in English on its two sides. On the reverse side these coins bear the denomination in numericals in English, and in letters in Hindi, and also the year of the issue in English numericals. The only exception was that of aluminium-bronze 20 paise coin issued from 1968 to 1971 as this coin contained a figure of a lotus flower on its reverse. It had been decided to issue coins bearing, on the reverse, our national bird, national animal, national fruit, national flower, etc. Accordingly, the first issue was made of national flower. But later, this proposal was dropped and therefore, the 20 paise coin with the lotus on the reverse remained an exception.

With the sudden increase in the prices of copper and nickel, certain changes in the alloy composition of the decimal series were introduced in 1962. They were as under*:—

(1) The bronze one paisa was replaced by nickel brass (copper 79 per cent, zinc 20 per cent, nickel 1 per cent) in 1962. The weight and

* *Indian Coinage Since Independence*, issued on the occasion of the 25th Anniversary of Independence, Govt. of India.

shape of the coin remained unaltered. In October 1965, the aluminium-magnesium alloy (Mg-3.5 to 4 per cent, Al. remainder) was adopted for the paisa, and the shape was changed from round to square with rounded corners, this new coin weighed 0.75 grams. (2) A new coin in aluminium-magnesium alloy of the denomination of three paise, weighing 1.25 grams and hexagonal in shape was introduced in July 1964. (3) Two paise coin in aluminium-magnesium alloy, weighing 1.0 gram and 8 scalloped was introduced in July 1965. Five paise coin in aluminium-magnesium alloy, weighing 1.5 grams and square with rounded corners was introduced in January 1967. (4) A new coin in the denomination of twenty paise was introduced in April 1968, discontinuing minting of twenty-five paise coin in pure nickel with a view to conserve nickel which was in short supply. The alloy chosen for this new twenty paise coin was aluminium-bronze (copper 92 per cent, nickel 2 per cent and aluminium 6 per cent). The coin was circular in shape and weighed 4.5 grams. (5) The same alloy was used for ten paise coin from the same date with a view to conserve nickel. The aluminium-bronze ten paise coin weighed 4.25 grams, instead of 5.0 grams of the earlier cupro-nickel piece of the same denomination, the shape and design remaining the same in all respects. The aluminium-bronze alloy proved very popular because of its golden yellow colour but this also led to the erroneous belief that this coin contained ' gold ' resulting in large-scale hoarding and diversion of these coins for the making of trinkets, etc. The minting of ten paise and twenty paise coins in aluminium-bronze alloy was therefore, stopped from October 1971. (6) In lieu of the Al. Bronze ten paise coin a new aluminium-magnesium coin was introduced in October 1971 in an entirely new shape and size. It weighs 2.3 grams, has 12 scallops and measures 26 mm. across scallops. (7) In place of aluminium-bronze twenty paise coin, the minting of twenty-five paise coin was resumed from January 1972, but instead of pure nickel, cupro-nickel alloy (75 per cent copper and 25 per cent nickel) has been adopted. The shape and weight as also the general appearance remained the same as of the pure nickel piece except for a small change in the design on the reverse. The cupro-nickel twenty-five paise coin weighs 2.5 grams and is circular in shape (19 mm dia). (8) Cupro-nickel alloy in place of pure nickel has also been adopted for the fifty paise coin from January 1972 with a view to reducing the nickel content. But the shape, weight and general appearance remained unchanged, except for security edging which has been adopted (instead of milled edge of the nickel piece) to deter counterfeiting and for a small change in the design of the reverse. (9) A small change in the design of the reverse of 3 and 5 paise coins was made in March 1972 so as to bring uniformity in the design of the reverse of all the denominations.

Apart from the various series of new coins, the mint issues commemorative coins almost every year. Commemorative coin is a coin issued to mark, honour, or observe an event, place or person, or to preserve its memory. The themes on commemorative coins are selected every year by the Government of India on National and International events.

The list of commemorative coins issued by Bombay Mint since Independence is given below:—

Year	Theme	Denominations
1964	Jawaharlal Nehru	Re. 1 and 50 P.
1969	Mahatma Gandhi	Rs. 10, Re. 1. 50 P. and 20 P.
1970	Food for all	Rs. 10, and 20 P.
1971	Food for all	Rs. 10 and 20 P.
1972	Indian Independence 25th Anniversary.	Rs. 10 and 50 P.
1973	Grow More Food	Rs. 20, Rs. 10 and 50 P.
1974	Planned families, Food for all	Rs. 50, Rs. 10 and 10 P.
1975	Equality, Development, Peace	Rs. 50, Rs. 10 and 10 P.
1976	Food and work for all	Rs. 50, Rs. 10, 10 P. and 5 P.
1977	Save for Development	Rs. 50, Rs. 10, 10 P. and 5 P.
1978	Food and Shelter for all.	Rs. 50, Rs. 10, 10 P. and 5 P.
1979	Happy Child Nation's Pride.	Rs. 50, Rs. 10, 10 P. and 5 P.
1980	Rural Women's Advancement.	Rs. 100, Rs. 10, 25 P. and 10 P.
1981	World Food Day	Rs. 100, Rs. 10, 25 P. and 10 P.

Besides, proof coins or uncirculated coins are minted at Bombay. Proof coins (or Collector's coins as they are popularly called) are exceedingly high quality coins. They are struck individually with specially

prepared blanks and highly polished dies. A ' Proof set ' of Indian coins consists of one coin of each denomination authorised for circulation or commemorative purposes. Orders for the proof coins are booked every year by the Master of the Mint, Bombay upto a specified date notified every year in the leading newspapers.

The current capacity* of the India Government Mint, Bombay, is 3.0 Million pieces a day, on double shift basis. It is the only licensed gold refinery in the country at present. Besides, it manufactures and supplies the reference, secondary and working standards of metric weights, capacity and linear measures for all the States in India. There is also a medal section which undertakes production of medals for civilian and military awards. Orders for supply of ' Proof ' and ' uncirculated ' coins are now executed by Bombay Mint.

In the year 1970 the Bombay Mint coined coins for Greece. In the same year the mint produced 86 million coin blanks for Thailand. This mint supplied coins between the period 1891 and 1947, to many foreign countries, such as Sri Lanka, East Africa, Australia, Egypt, Bhutan, Iraq, Saudi Arabia, Malaya and Muscat.

MONEY-LENDERS

The institution of money-lenders is a traditional organisation and sometimes an hereditary occupation which is generally undertaken by Marwadis, Pathans, landlords, traders, etc. Prior to the introduction of banking system on modern lines by the British rulers in the 19th Century, the money-lenders and the indigenous bankers used to perform all the banking activities. The former used to advance loans mostly for unproductive purposes at a very high rate of interest and did not accept deposits while the latter advanced loans for commercial and industrial purposes and accepted deposits. The fast growth of commercialisation and industrialisation leading to higher standard of living has resulted in the increasing demand for financial assistance and has finally led to the flourishing of institutions engaged in money transactions including the institution of money-lenders. The money-lenders generally work on individual basis with their own financial resources.

In Bombay, the establishment of cotton mills attracted large number of uneducated workers from various parts of the country. It became very difficult for them to adjust with the new conditions of life in the city as also to maintain their families at their native places. They ultimately became regular victims of money-lenders. Before the growth of banking and such other credit facilities, money-lender was the only source for the

Nineteenth and Twentieth Century Coins of India, D. C. Chakravarty, 1979.

poor and needy persons as also to the small borrowers. In the absence of organised credit facilities, at a reasonable rate of interest, the borrowers were continually exploited by the money-lenders. Chronic indebtedness became more or less their way of life. In due course, credit facilities at reasonable rates were made available. The money-lenders, however, continued to enjoy almost the same predominant position in the economy as in the past. In these circumstances, it was found necessary to regulate the business of money-lenders by a legislative act. It was with this purpose in view that the Bombay Money-Lenders Act was passed in 1946.

Generally, there are two types of money-lenders, professional and casual. The latter advance loans to their friends and try to cover the risk by charging a high rate of interest. The dealings of a casual money-lender are of a casual character and in some cases they even fail to get the repayment of loan. The other type is of professional money-lenders, who undertake money-lending as an occupation or means of their livelihood. There are still others who combine this occupation with some other profession or trading activity. There are Marwadis who are full-time money-lenders and who also supply consumer goods to the borrowers. The Marawadi money-lenders also adopt various techniques for keeping their hold on customers. They generally advance loans on pledge of physical security such as ornaments, moveable or immoveable property etc. The rate of interest varies according to nature of security offered and is calculated on monthly basis. Generally the customers of Marwadis comprise low income group or even middle class people such as mill workers, government servants, petty traders, etc.

Rapid industrialisation and growth of trade and commerce in Bombay provided a good scope to money-lenders. As a money-lender used to offer loans on security immediately without any hesitation, many traders came forward to borrow money from him to meet their business requirements. All these factors have led to increase in the number of money-lenders. During 1963-64, there were 1202 money-lenders in Bombay; while the number increased to 2053 in 1970-71. As compared to Bombay Division, Bombay claimed the highest number of money-lenders; as out of the total of 3228 money-lenders during 1970-71, there were as many as 2053 money-lenders in Bombay. The number of money-lenders in Bombay rose to 2600 during 1973-74 against 3633 in Bombay Division. However, in 1980-81 the number of money-lenders in Greater Bombay showed a decrease as the same stood at 2117.

The transactions of money-lenders are now governed by the Bombay Money-Lenders Act, 1946 which was amended by the Bombay Money-Lenders (Unification and Amendment) Act, 1959. The amount of loans

advanced by money-lenders during 1950-51 and 1960-61 in Bombay is shown in the following statement :—

(Figures in Rs.)

Particulars	1950-51	1960-61
Total loans advanced to traders and non-traders—		
(*i*) Exempted under Section 22 of the Act.	144,982,527	122,288,806
(*ii*) Not exempted under Section 22 of the Act.	14,372,104	19,248,066
Loans advanced to traders—		
(*i*) Exempted under Section 22 of the Act.	143,496,497	121,531,111
(*ii*) Not exempted under Section 22 of the Act.	3,522,834	13,158,710
Loans advanced to non-traders—		
(*i*) Exempted under Section 22 of the Act.	1,486,030	757,695
(*ii*) Not exempted under Section 22 of the Act.	10,849,270	6,089,356

A comparative position of money-lending business in Greater Bombay and the State during 1970-71, 1973-74 and 1976-77 was as follows:—

(*a*) Money-lending transactions exempted under Section 22 of the Bombay Money-Lenders Act—

Year	Loans to traders (Rs.)	Loans to non-traders (Rs.)	Total Loans (Rs.)
Greater Bombay—			
1970-71	306,733,000	31,235,000	337,968,000
1973-74	264,938,113	49,662,291	314,600,404
1976-77	209,417,000	37,292,000	246,709,000
Maharashtra—			
1970-71	307,952,000	41,466,000	349,418,000
1973-74	266,371,513	65,506,068	331,877,581
1976-77	209,417,000	41,251,000	250,668,000

(*b*) Money lending transactions not exempted under Section 22 of the Bombay Money-Lenders Act—

Year	Loans to traders (Rs.)	Loans to non-traders (Rs.)	Total Loans (Rs.)
Greater Bombay—			
1970-71	63,180,000	62,578,000	125,758,000
1973-74	105,512,565	84,403,512	189,916,077
1976-77	61,144,000	30,999,000	92,143,000
Maharashtra—			
1970-71	117,068,000	239,721,000	356,789,000
1973-74	163,804,450	336,437,819	500,242,269
1976-77	91,105,000	153,883,000	244,988,000

The licensed money-lenders in Greater Bombay who were not exempted under Section 22 of the Bombay Money-Lenders Act, 1946 advanced loans to the tune of Rs. 6,09,62,000 in 1980-81 out of which Rs. 4,05,47,000 were advanced to traders and Rs 2,04,15,000 to non-traders. Similarly the money-lenders who were exempted under Section 22 of the Act advanced an amount of Rs. 8,47,35,000 as loans during 1980-81 to non-traders. As compared to advances during 1970-71, the loans advanced in 1980-81 showed a decline.

The maximum rates of interest upto 12 and 15 per cent per annum on secured and unsecured loans, respectively were in force upto July 1971. However, these rates were increased to 14 and 17 per cent per annum, respectively upto September 1974. Afterwards these rates were allowed to increase upto 18 and 21 per cent on secured and unsecured loans, respectively.

CO-OPERATIVE MOVEMENT

Since the passing of India Act X of 1904, co-operative credit societies have been established in Bombay City, and the first co-operative credit society, known as the Bombay Pioneer Urban Co-operative Credit Society was registered in 1905. In 1906, the Bombay Urban and the Shamrao Vithal Co-operative Credit Societies were formed.

Subsequently a number of co-operative societies of various types were registered.

The total number of different types of co-operative societies during 1960-61 in Bombay was 1670 which increased to 2,965 in 1964-65 and further to 5,207 in 1970-71. Out of 5,207 co-operative societies, housing, urban credit and consumers' stores together accounted for 4,879, covering nearly 98 per cent of the total. The co-operative movement in Bombay is

necessarily an urban movement. During 1975-76, the total number of co-operative societies of all types stood at 7645. The details of all types of co-operative societies in Greater Bombay are given in the following pages.

Primary Agricultural Credit Societies : At the end of June 1976, there were nine primary agricultural credit societies with a membership of 2881. The paid up capital of these societies amounted to Rs 12.94 crores, of which Government's share amounted to 30 lakh. The amount of deposits were to the tune of Rs 4.64 crores, where as the total liabilities were to the tune of Rs. 49.32 crores. The working capital of these societies was to the tune of Rs. 27.03 crores, the total investments Rs. 6.12 crores and total assets Rs 55.87 crores.

Out of nine societies, one society owned a godown with a storage capacity of 250 tonnes, three societies had one hired godown each with the total storage capacity of 850 tonnes. Only two societies dealt in advancing loans which amounted to Rs. 90,346 during the year 1975-76.

Urban Credit Societies : Joint-stock banks in the beginning used to cater to the needs of big entrepreneurs, industrialists and businessmen concentrated in big cities. These banks were not interested in developing business of common man. Under these circumstances, numerous petty traders and artisans, small salaried classes had to depend upon the money-lenders. Even now most of the families in industrialised cities like Bombay are found in debt. With the recent trend of urbanisation, the need for urban credit societies is assuming new significance.

The urban credit societies reach a common man in the distant corners of the city where a joint-stock bank may not reach. In 1948-49, Bombay City had 269 urban credit societies with a total membership of 3,06,616; while the number of urban credit societies in suburban areas was 24 with a membership of 6,538. The percentages of population covered by these societies in the city and suburban areas were 20.5 and 8.3, respectively. Thus compared to the figures in Bombay State, the highest number of urban credit societies and the highest percentage of coverage of urban population were found in Bombay city. The co-operative movement received impetus especially after 1960 and Bombay was no exception to it. During the decade 1960-61 to 1970-71 the number of urban credit institutions had been doubled in the city. During 1970-71, the number of credit societies was put at 905 with 10,41,000 members.

Urban Banks :* Prior to the recommendations of Mehta-Bhansali Joint Re-organisation Report on Co-operative Movement in 1939, every urban credit society whose working capital exceeded Rs. 50,000 was called a major urban bank. According to these recommendations,

* For details refer to ' Co-operative Banking ' under the section of Banking and Finance.

the former Bombay Government laid down that only those urban credit societies which actually undertook the business of banking and which had a paid-up share capital of not less than Rs. 2,000 could be called full-fledged urban bank. The first co-operative bank *viz.* the Shamrao Vithal Co-operative Bank was registered under the co-operative fold in 1906. It was mainly established to help the people of Saraswat community by giving them credit facilities. Since its inception, the Bank has showed an all-round progress in its business.

During 1970-71, the total number of co-operative banks in Greater Bombay district was 69 with a total membership of 4,76,000. In 1975-76, the number of banks rose to 83 with a total membership of 4,73,636. However, the number of primary urban co-operative banks decreased to 75 by the end of December 1977. Of these, four were under liquidation and 11 were salary earners' co-operative banks.

Salary Earners' Societies : These are also known as Employees' Credit Societies and are mainly urban credit societies. The repayment of loans from the salaries of the members enables the societies to avoid the problem of overdues which is a common problem faced by all types of credit societies. During 1975-76, the number of such societies was 875 and their total membership was 12,18,635. Other particulars of these societies are given below :—

Particulars	Number
Total employees' credit societies	875
Members ..	12,18,635
Paid-up capital (Rs. in '000)	25,95,73
Working capital (Rs. in '000)	50,10,20
Distribution of consumers' goods—	
(*i*) Societies engaged	40
(*ii*) Value of goods purchased (Rs. in '000) ..	3,001
Goods sold—(Rs. in '000) :	
(*i*) Foodgrains (Rs. in '000)	1,492
(*ii*) Others (Rs. in '000)	1,446
Profit—	
(*i*) Societies	837
(*ii*) Amount (Rs. in '000)	27,104

Milk Supply Societies : Milk supply business is growing enormously in the vast area of Greater Bombay. The three dairies established by the

State Government find it very difficult to cope up with the demand for milk. This very fact led to the growing of business of private milk suppliers. However, to overcome the competition and other problems of business such as difficulties in distribution of milk, transport, etc., some of them came together and formed co-operative societies. During 1964-65, there were as many as 27 dairy societies including two dairy federations in the Greater Bombay district. The total number of members of these societies was 1,184. The number of societies however, decreased by three during 1970-71, and their membership by 501. During 1975-76, the number of milk societies showed an increase and the same stood at 29, while the number of dormant societies was 4. The particulars of these societies are given below:—

Particulars	Number
Number of societies ..	29
Number of members—	
(*i*) Societies	15
(*ii*) Individuals	806
Paid-up capital (Rs. in '000) ..	20,75
Working capital (Rs. in '000) ..	96,97
Sales (Rs. in '000) ..	1,45,39
Profit—	
(*i*) Number of societies ..	17
(*ii*) Amount (Rs. in '000)	88
Number of persons employed	50

Consumers' Stores: The development of consumers' co-operation as an economic system is well-associated with the name of Rochdale Pioneers. The consumers' co-operative movement received a great fillip during the First World War as a result of the abnormal conditions created by the war, but soon after the cessation of war, most of the stores had to be wound up. But since the Second World War, there had been a mushroom growth of these consumers' co-operatives, due to the noteworthy drive to instigate the consumers to come together for their own interest in getting proper distribution of consumers' goods at fair prices. The movement gained ground and received momentum after Independence and more so with the progress of Five Year Plans. Now, most of the consumers' stores undertake the sale of number of articles including the controlled commodities.

From 309 primary consumers' stores in Greater Bombay in 1965-66, the number rose to 389 in 1970-71. In 1975-76 the number of consumers' stores increased to 417, the details of which are given below:—

Particulars	Number
Number of primary consumers' stores	417
No. of members (in '000)	17,52
Share capital (Rs. in '000)	50.72
Working capital (Rs. in '000)	2,04.84
Total sales (Rs. in '000)	30,01.79
Number of societies in profit	290
Amount of profit (Rs. in '000)	12.35

Besides, the primary consumers' stores, there are wholesale consumers' stores in Greater Bombay engaged in the wholesale business of sale and purchase of consumers' goods. From 3 wholesale consumers' stores in Greater Bombay during 1964-65, the number increased to 8 in 1970-71 with a total membership of 47,306.

These eight stores had 55 branches scattered all over the district. During 1975-76, there was further increase in the number which stood at 15 with 99 branches with a total membership of 70,817. The details of these wholesale consumers' stores are given below:—

Particulars			Number
Total number of wholesale stores			15
Total number of branches			99
Membership—			70,817
(*i*) Individuals	70,381	..	
(*ii*) Consumers' stores	420	..	
(*iii*) Others	16	..	
Share capital (Rs. in '000) ..	..	..	91.48
Working capital (Rs. in '000) ..	..	..	4,61.79
Sales (Rs. in '000) ..	..	..	32,13.61
Purchases (Rs. in '000) ..	..	..	30,29.14
Profit—			
(*i*) Number of stores	..	..	9
(*ii*) Amount (Rs. in '000)	..	..	11.01
Loss—			
(*i*) Number of stores in loss	..	..	5
(*ii*) Amount (Rs. in '000)	..	..	21.02
Number of stores without profit or loss		..	1

Labour Contract Societies : In pursuance of its policy of progressive elimination of middlemen in the sphere of business, Government has decided to give preferential treatment to these societies in respect of

entrusting work to them. These societies also get loans from the Government.

During 1960-61, there were only 27 labour contract societies with a total membership of 3,775. Their number, however, increased to 43 with 6,623 members in 1964-65 and again to 67 during 1970-71 with 9,147 members. In 1975-76, there were as many as 103 labour contract societies in Greater Bombay, the details of which are given below:—

Particulars	Number
Number of labour contract societies	103
Number of members—	
(*i*) Labourers	13,187
(*ii*) Others	178
Paid-up capital (Rs. in '000)	11,73
Working capital (Rs. in '000)	49,82
Value of contracts executed (Rs. in '000)	1,65,93
Number of labourers employed	127
Income earned (Rs. in '000)	1,31,60
Profit—	
(*i*) Number of societies	48
(*ii*) Amount (Rs. in '000)	2,44

Transport Societies : Another important sector of the co-operative movement is the organisation of transport societies. These societies were first organised at the end of Second World War with a view to benefiting ex-service personnel. The Government sanctioned financial assistance to these societies. The successful working of these societies of ex-servicemen prompted the organisation of transport societies by other persons. These societies however, received a set-back due to nationalisation of passenger transport.

During 1970-71, the number of transport societies in Greater Bombay was 12 with 1,376 members. The number increased to 13 in 1975-76, including one society of ex-servicemen. However, out of 13 societies, 8 were dormant during the same period. The details of these societies are given below:—

Particulars	Number
Number of societies	13
Number of members	2,097
Paid-up capital (Rs. in '000)	4,42
Working capital (Rs. in '000)	24,05
Profit—	
(*i*) Number of societies	5
(*ii*) Amount (Rs. in '000)	98

Fishermen's Societies : A fishermen's society helps the fishermen to avail of the facilities of credit and other requisites such as nets, yarn, launches, etc. Besides, these societies help the members in transportation of fish to the market places by plying launches and trucks with the aid of Government loan and subsidy. The members of the society can get a better price for their fish by selling the same directly in the market.

There is a great scope for the fishing industry to flourish because of the constant and heavy demand for fish in Bombay. The fishermen have now understood that if their business is organised on co-operative basis, it brings them more profit than the individually organised business. A fishermen's society also protects its members from the exploitation by traders and middlemen and thereby helps in improving the economic conditions of the fishermen.

During 1964-65, there were 8 societies of fishermen working in Greater Bombay, besides one apex body with the total membership of 1,757. In the following years, there seemed to be a great increase in the number of societies which rose to 13 during 1970-71 with a total membership of 3,580.

Weavers' Societies : The weavers' societies have not much scope to develop their business in Greater Bombay as most of the handloom cloth arrives in Bombay market from areas and regions outside Greater Bombay. Besides, the taste of the people for this cloth has also undergone considerable change during the last two decades due to heavy competition from mill-made cloth. All these factors together are responsible for creating hindrance in the smooth working of these societies in Bombay. However, there were 16 weavers' societies in 1960-61 which increased to 18 during 1965-66, but reduced to 17 during 1970-71. The total membership of these 17 societies during 1970-71 stood at 2,045.

Housing Societies : The problem of accommodation in Greater Bombay was felt severely after the partition of the country and the consequential influx of population from Pakistan. The Government therefore, came forward to assist in organising co-operative housing societies by giving land and financial aid. At present, different housing schemes such as subsidised industrial housing societies, low-income group housing societies, middle-income group housing societies, slum-clearance schemes etc., are implemented by various authorities.

The Saraswat Co-operative Housing Society was the first co-operative housing society formed in 1915.

The co-operative housing societies are of three types: tenant ownership housing societies, co-partnership tenant societies and the mixed typed which is the combination of the above two types.

The co-operative housing soceities of individuals other than backward class people and industrial workers are financed by the Maharashtra Co-operative Housing Finance Society established in 1958. This society gets finance mainly from the Life Insurance Corporation of India on the guarantee of the State Government. As the number of co-operative housing societies in Greater Bombay went on increasing, it was felt necessary as compared to the number in other cities to have a federal body of the housing societies. In view of this, the Bombay Co-operative Housing Federation Ltd., was registered in 1948. It is carrying on various activities to serve the interests of its member societies in particular, and help the movement of co-operative housing in Greater Bombay in general.

With a view to solve the huge housing problem in Greater Bombay, co-operative housing societies are playing a vital role. During 1964-65, there were as many as 1,635 housing societies with 6,432 members. Out of these societies, the number of societies of backward class people was 55. All these societies constructed 15,058 houses. The number of societies during 1971-72 rose to 4,053 with a total membership of 1,31,161. Besides, there were 88 housing societies of backward classes, nomadic tribes, *vimukta jatis* and other backward classes. These 4,053 societies constructed 47,953 houses during the same period. The share capital of these societies amounted to about Rs. 9.33 crores; while loans borrowed were to the tune of Rs. 51.32 crores. Out of the 88 housing societies of backward classes, nomadic tribes and *vimukta jatis* in 1971-72, the number of housing societies of scheduled castes (flood-affected) was 73 which constructed 600 houses during the same year. The share capital of these societies was to the tune of Rs. 28.51 lakhs, while the amount borrowed stood at Rs. 57.65 lakhs. In 1975-76, the number of housing societies rose to 5,564, the details of which are given below :—

Particulars	Number
(1) Number of societies	5,564
(2) Number of members	17,07,306
(3) Paid-up capital (Rs. in '000)	1,10,026
(4) Reserve and other funds (Rs. in '000) ..	30,899
(5) Borrowings (Rs. in '000)	8,52,018
(6) Total liabilities (Rs. in '000)	16,95,140
(7) Working capital (Rs. in '000)	9,92,943
(8) Fixed assets (Rs. in '000)	1,69,566
(9) Houses constructed by societies during the year ..	355
(10) Value of houses constructed (Rs. in '000) ..	9,038
(11) Number of societies without profit or loss ..	605
(12) Number of societies in profit	3,294
(13) Profit (Rs. in '000)	2,145

Other Industrial Co-operatives : Cottage industries and small scale industrial units assume a great significance in our economy as these units try to solve the severe problem of unemployment. In Bombay as elsewhere, the Government have not only offered financial assistance to these units but have given some concessions as also taken some measures towards promoting the sale of their products.

During 1960-61, there were as many as 82 industrial co-operatives in Greater Bombay, which however, increased to 85 in 1970-71. During 1975-76, the number of the societies stood at 79, of which 26 were dormant. These 79 societies included oil crushing, pottery, flaying and tanning, handicraft, general engineering, chemical engineering, leather goods, other village industries and miscellaneous industries. The details of these industrial societies are given below—

Particulars	Number
Number of societies	79
Number of dormant societies	26
Membership—	
(*i*) Societies, individuals and others	5,637
(*ii*) Of dormant societies	1,788
Total liabilities (Rs. in '000)	12,454
Paid-up capital (Rs. in '000)—	
(*i*) Working capital	13,409
(*ii*) Total	2,603
(*iii*) Government contribution	851
Statutory reserve fund (Rs. in '000)	1,004
Other funds (Rs. in '000)	1,692
Deposits (Rs. in '000)	1,233
Total borrowings (Rs. in '000)	1,925
Other liabilities (Rs. in '000)	3,996
Total assets (Rs. in '000)	13,409
Closing stocks (Rs. in '000)—	
(*i*) Raw material	2,110
(*ii*) Finished goods	143
Fixed assets (Rs. in '000)—	
(*i*) Plant and equipment	2,704
(*ii*) Land and buildings	700
Profit—	
(*i*) Number of societies	44
(*ii*) Amount (Rs. in '000)	485
Loss—	
(*i*) Number of societies	26
(*ii*) Amount (Rs. in '000)	169
Number of societies without profit or loss ..	9

Industrial Estates : Bombay being a big industrial city, there is always a cut throat competition among the entrepreneurs. In the severe competition from large industries, a small-scale unit cannot stand on its own footing for the requirements of raw material, a plot of land, shed, etc. Such small units come together and start working on co-operative basis. During 1964-65, there were ten industrial estates working in Bombay. The year 1975-76 recorded a slow growth in the number of such industrial estates, as the same stood at 18 during 1975-76 against 15 in 1970-71.

The financial and other aspects of these industrial estates are given below:—

Particulars	As on 30th June 1976
Number of industrial estates	18
Membership—	
(*i*) Individuals	873
(*ii*) Societies	3
Working capital (Rs. in '000)	26,687
Paid-up capital (Rs. in '000)	3,341
(*i*) Government (Rs. in '000)	25
(*ii*) Societies (Rs. in '000)	19
(*iii*) Individuals and others (Rs. in '000) ..	3,297
Statutory reserve fund (Rs. in '000)	329
Other funds (Rs. in '000)	2,398
Deposits (Rs. in '000)	6,047
Borrowings (Rs. in '000)	4,132
All other liabilities (Rs. in '000)	14,678
Total assets (Rs. in '000)	26,687
Investment (Rs. in '000)	961
Fixed assets (Rs. in '000)	19,295
Loans outstanding (Rs. in '000)	3,842
All other assets (Rs. in '000)	2,589
Difference between assets and liabilities (Rs. in '000) ..	(—)106
Employment provided by industrial estates ..	132
Employment provided by members	3,294

Greater Bombay Co-operative Board : Education and training in co-operation and propaganda for the spread of co-operative movement are undertaken by the District Co-operative Board under the guidance of Maharashtra State Co-operative Union Ltd. A similar district level co-operative institution known as the Greater Bombay Co-operative Board Ltd., was established in 1949. The area under its jurisdiction extends over the city and suburbs of Bombay. The membership of the

board is of two types *viz.*, ordinary membership consisting of all co-operative societies in Greater Bombay; and the associate membership consisting of individuals and representatives of the Maharashtra State Co-operative Union, Central Financing Agency, and the Co-operative Department of the State Government. On the 30th June 1976, there were 824 co-operative societies and 341 individuals as members of the Board.

The Board during 1975-76 conducted 27 Panch Committee Education Classes, two camps of the employees of the co-operative societies including one camp of women employees in the co-operative field, 8 education classes for employees of industrial societies. Besides, the board conducted two acquaintance meetings so as to keep acquaintance with the executives of different co-operative societies, and 14 training classes for women's co-operative societies.

The Board since 1960 publishes one Marathi fortnightly *viz., Sahakari Jeevan.* It has maintained a library equipped with a good collection of books on co-operation. It has also published some booklets giving yearly statistics of co-operative societies in Greater Bombay.

At the end of 1976, the membership of the Board comprised 817 primary co-operatives, 7 central co-operatives and 341 individuals.

In its efforts to spread co-operative movement in the State, the Board conducts two co-operative training colleges, one at Pune and the other at Nagpur, in addition to eleven co-operative training centres in the State and one evening school in Greater Bombay. Under the Member Education Programme, the Board holds secretaries' training classes, managing committee classes, various types of camps, study tours, rallies, etc. The Board also conducts functional courses in marketing, auditing, banking, dairy, etc.

During 1975-76, the number of persons on the roll of secretaries' training classes stood at 27, and the number of persons on the roll of managing committee classes stood at 292.

Co-operative Unions : During the early period of the Twentieth Century the co-operative movement in India suffered from various drawbacks. The Maclagan Committee of 1915 felt that the main hitch was nothing but lack of knowledge and information about the movement. As a result was expounded the idea of setting up a co-operative union, for imparting knowledge to workers in the field of co-operation.

Maharashtra State Co-operative Union, Bombay : At the Regional Co-operative Conference held in 1917, it was decided to set up such a union and the same was registered on 13th July 1918, under the name of Bombay Central Co-operative Institute. In 1957, the name of the

institute was changed to Bombay Provincial Co-operative Union. After the formation of the Maharashtra State in 1960, the Union was renamed as Maharashtra Rajya Sahakari Sangh.

The main objects of the Sangh are to impart education in co-operation and to function as a focussing centre of non-official opinion on various subjects affecting the co-operative movement, to further the spread of co-operative movement, to undertake publicity and publish literature.

The Sangh began its working in right earnest from its inception in 1918. The Sangh battled valiantly when the Thomas Committee Report of 1931-32, came as a death-blow to co-operative movement. During the period, the Sangh brought to the notice of the State Government, the deficiencies in the said report. Besides, the Sangh urged the Government not to take any policy decision with regard to co-operative movement without consulting the workers in the field of co-operation. The movement after making some changes in its structure was reinforced. The Sangh celebrated the Golden Jubilee of co-operative movement in 1954 and its own Golden Jubilee in 1971.

All District Co-operative Boards and Divisional Co-operative Boards which are registered separately under the Act, are affiliated to the Sangh, besides all apex Co-operatives, Urban and District Central Co-operative Banks and other important co-operatives in Maharashtra.

The Sangh has a special women's wing working under the guidance of the Women's Educational Advisory Committee which chalks out and executes educational programme for women. The Sangh convenes State Co-operative Conferences, organises seminars, symposiums, panel discussions, etc.

The Sangh brings out various publications including two fortnightlies one in Marathi *viz., 'Sahakari Maharashtra'* and the other in English known as *' the Bombay Co-operator '*; one quarterly in English *viz., 'The Maharashtra Co-operative Quarterly'*. The Sangh has audio-visual propaganda machinery as an effective means of carrying the gospel of co-operation in rural areas.

The principal source of revenue of the Sangh is the education fund collected from the co-operative societies on the basis of their working capital. The societies are under statutory obligation to pay their contribution to the fund. The income of the Sangh, during 1975-76 amounted to Rs. 42,000; while its expenditure during the same period amounted to Rs. 1,21,000.

Bombay District Central Co-operative Bank : This Bank was registered on 6th August 1974 and actually commenced its banking business on 12th February 1975. It has its head office at Palton Road, and has opened three branches, one each at Vile Parle, Dadar and Ghatkopar.

The area of operation of the bank covers the Greater Bombay district as also the New Bombay City. The number of members of the bank on 30th June 1975 was 469 which increased to 1545 upto 30th June 1980. The particulars of its membership are shown below:—

Particulars	As on 30th June 1976	As on 30th June 1980
Co-operative Societies ..	425	1,125
Individual members, Others and Maharashtra State Government.	175	420
Total ..	600	1,545

The authorised share capital of the bank is Rs. 5.00 crores.

The paid-up share capital at the time of registration and commencement of banking business was Rs. 11,11,200 and Rs. 11,96,700, respectively. At the end of June 1980, the paid-up share capital of the bank was Rs. 58.42 lakhs, out of which an amount of Rs. 10 lakhs was by way of contribution from the State Government.

The particulars of deposits of the bank are shown below :—

(Rs. in lakhs)

Type of Deposits	1977-78	1978-79	1979-80	Percentage of increase over last year
1. Current Deposits—				
(*a*) Societies	65.89	1,10.68	1,61.47	45.88
(*b*) Individuals	12.77	8.13	8.67	6.64
2. Savings Deposits—				
(*a*) Societies	91.53	2,01.70	2,61.54	29.66
(*b*) Individuals	27.37	39.94	45.27	13.34
3. Fixed Deposits—				
(*a*) Societies	4,23.53	6,91.71	10,91.35	57.77
(*b*) Individuals	18.62	27.49	41.22	49.54
4. Term Deposits—				
(*a*) Societies	....	0.03	0.41	98.33
(*b*) Individuals	1.01	1.69	2.99	76.92
5. Cash Certificates	0.04	0.11	1.09	89.90
6. Call Deposits	15.00	....	10.00	....
Total ..	6,55.76	10,81.48	16,24.01	50.16

The bank has become a member of the Deposit Insurance Corporation of India, and deposits to the extent of Rs. 10,000 are insured by the said corporation. The bank has started fixed deposit scheme linked with various schemes such as janata personal accident benefit policy scheme, surgical operation scheme, hospitalization scheme. Besides, the bank has also started pension scheme, cash certificate scheme, etc.

The surplus resources of the bank are invested in the form of shares and deposits in the Maharashtra State Co-operative Bank and Government bonds and debentures of the Bombay Municipal Corporation. The total investment of the bank increased from Rs. 40.55 lakhs during 1974-75 to Rs. 10,90.94 lakhs during 1979-80.

The bank being a central financing agency for co-operative sector, has started advancing different types of loans to various societies, such as, co-operative societies, urban credit societies, industrial co-operative societies, housing societies, labour-contract societies, fisheries societies, etc. in Greater Bombay and New Bombay area.

The particulars of the loans advanced by the bank upto the end of June 1976 and 1977 are as follows :—

(Rs. in lakhs)

Particulars	Amount (Rs.)	Amount (Rs.)
Loans advanced (cash credits or overdrafts)	1,480.50	2,883.15
Bills discounted	6.42	2.60
Loans advanced (medium-term) ..	8.59	3.96
Total ..	1,495.51	2,889.71

The total loans overdue during 1975-76 amounted to Rs. 2.49 lakhs which increased to Rs. 6.91 lakhs during 1976-77. The outstanding short-term and long-term loans as on 30th June 1980 were Rs. 575.96 lakhs and Rs. 13.53 lakhs, respectively.

The actual profit gained by the bank shows an increasing trend in the succeeding years since its inception as the amount of profit went on increasing from Rs. 0.71 lakh in 1974-75 to Rs. 6.73 lakhs in 1975-76, Rs. 13.00 lakhs in 1976-77 and Rs. 15.50 lakhs in 1979-80.

The bank has become a member of the Bombay Banker's Clearing House from 1st July 1977, and started participating in clearing house from the same date.

The bank issues demand drafts and collects cheques of the parties under mutual arrangement scheme for Maharashtra, Gujarat and

Karnatak States. The bank being a member of the All India State Co-operative Banks Federation issues demand drafts on any State and Union Territory of India.

Maharashtra State Co-operative Bank Limited, Bombay : The Bank was established on October 11, 1911 by a special resolution of the then Government of Bombay. Originally, it started business by taking over from Government the function of financing agriculturists under the Scheme of Taccavi Loans. During the ensuing two decades of otherwise smooth working, the Bank, sometimes, faced critical periods. The Bank could, however, successfully weather through these storms and stood firm on its own strength and emerged even stronger than before. The World War II brought stability to agricultural prices and enabled the Bank to further consolidate its position. The astute and enlightened leadership thus provided by stalwarts in the co-operative movement and the progressive and pragmatic attitude of the State Government helped, to a large extent, in the continued progress and prosperity of the Bank.

During the year 1975 deposits improved to Rs. 162.52 crores from Rs. 151.46 crores in the year 1974 and maintained a satisfactory growth rate. The Bank undertakes various schemes for deposit mobilisation.

After attainment of Independence in 1947, the Bank has not only achieved phenomenal progress in its traditional activities but has also projected a significant image as a Development Bank resulting in consolidation and diversification of the co-operative effort in the State, as also provided a leadership to the co-operative sector of the State. The evolution of the crop loan system of financing agriculture, acceptance of the principle of State-participation in the share capital of co-operatives, the successful organisation of co-operative sugar factories and other processing industries, which became forerunners of producers' co-operatives, the successful implementation of the scheme for monopoly procurement of foodgrains and cotton as the sole agent of the State Government, and the starting of an industrial consultancy cell are some of the significant contributions to the development of co-operative endeavour in the State.

The essential feature of the working of the Maharashtra State Co-operative Bank is its role as a Development Bank. The Bank's entire career has been marked with a spirit of innovation and experimentation. The eminent position it occupies today in the co-operative sphere in the whole country has not been an accident, but it is the result of its sustained progressive policies. The Bank has, thus, played its role as a balancing agent, both in financial terms and in the matter of providing leadership to the co-operative movement. It has been fortunate to have the guidance from outstanding thinkers and the required assistance from the enlightened

administration of the State, which has enabled it to occupy a premier position in the co-operative banks of the State. The progress of the Maharashtra State Co-operative Bank Limited, Bombay is shown below :—

(Rs. in crores)

Particulars	1973 (June)	1975 (June)
Paid-up Capital and Reserves ..	24.63	33.05
Deposits	127.81	162.52
Advances	164.61	233.69
Investments	39.33	50.21
Total income	11.84	20.02
Net profit	0.87	1.39
Dividend	0.50	0.78
Number of employees	1409	1690*
Number of branches	28	34*

JOINT-STOCK BANKS

Historical Background : The present banking system is the outcome of innovations considerably influenced by historical growth and past traditions. The agency houses in Bombay were the pioneers of banking in the city. The earliest mention of a bank in Bombay is recorded in December 1720. It was established for the benefit and advantage of both the Company and the inhabitants, with the capital stock of one lakh rupees advanced by the Company from their cash. The management of the Bank was supervised by the then Bombay Government. During the first twenty-four years of its existence, the bank could not prosper, as the sums were lent on personal bonds and no care was taken of the securities pledged. Besides, some of the debts were of twenty years duration and the carts and houses mortgaged to the bank had fallen into decay even before the settlements of the accounts. Regulations were passed in 1774 to prevent further difficulties arising from large amount of outstanding debts. As a result, the bank worked smoothly for the following thirty years. Again in 1778, the sum due from bond creditors increased to Rs. 28 lakhs and the amount of debt due from the Government treasury to the bank also reached a high figure and the same was increasing annually by the accumulation of interest. Therefore the then Government of Bombay proposed to fix the debt at a certain sum, write it off and establish a new bank. Thus, the career of the first bank was closed.

During the nineteenth century until the establishment of the Bank of Bombay, the banking business in Bombay was carried on by about hundred Hindu shroffs. In 1835, a savings bank was established by the then

* The figures pertain to 30th September 1975.

Government. As the commercial activities were rapidly expanding and Bombay had abundance of capital, the proposal of establishing a Bank of Bombay was first brought forward in 1836.

The Bank of Bombay commenced its working in 1840 with a capital of Rs. 52½ lakhs. The business of the Bank of Bombay was confined to receiving deposits, keeping cash accounts, discounting bills and drafts and other investments. In fact until the establishment of Government Paper Currency Office in 1860, the Bank of Bombay also enjoyed the privilege of issuing bank notes. The Bank of Bombay was afterwards reconstructed in the year 1868. In 1842, another company *viz.*, the Bank of Western India was formed at Bombay to give every facility for the conduct of exchange and other legitimate banking business which was conspicuous by its absence in the charter of the Bank of Bombay. The business of the Bank of Western India was chiefly confined to exchange of loans and deposits and continued its working until 1845, when the shareholders of that bank formed themselves by a fresh deed of agreement into a new company *viz.*, Oriental Bank. In 1845, another banking company under the name of Commercial Bank was formed mainly on the suggestion of native merchants for the purpose of encouraging and assisting the local trade as the two banks mentioned earlier could not serve that purpose. In 1851, there were two banks in Bombay, besides the Government Savings Bank and two branches of other institutions *viz.*, the Oriental Bank of London and the Agra and United Service Bank. During the next five years, three more banks were opened, of which two were branches, one of the North-Western Bank of India and the other of the London and Eastern Bank. The new Chartered Mercantile Bank of India, London and China was of local origin. However, between 1855 and 1863 the branches of the London and Eastern Bank and the North-Western Bank closed their business in Bombay. But the Chartered Bank of India, Australia and China, incorporated by Royal Charter, opened an agency in Bombay and a new bank *viz.*, the Central Bank of Western India was established in Bombay in 1860 with a capital of Rs. 50 lakhs. By 1862, two European Corporations *viz.*, the Sind, Punjab and Delhi Corporation and the Comptoir d' Escompte de Paris, had opened branches in Bombay.

The period between 1861 and 1864 recorded great prosperity, and enormous wealth poured into the city as a result of the cutting off of the American cotton supply.

This sudden increase of wealth led to the widest speculation and resulted in the formation of numerous financial and banking institutions.

In 1867, the Bank of Bengal opened an agency and in 1869 the Honkong and Shanghai Bank and the Agra Bank of London opened their branches in Bombay City.

By 1870, there were eighteen local banks, besides five exchange banks and 32 financial associations and Corporations in Bombay. All of the newly founded banks did not survive after 1871, but the five exchange banks continued their banking transactions.

The banking business flourished steadily upto 1890 and suffered from stagnation between 1890 and 1905. The stagnation was the result of bad seasons and the out break of plague. The chief features of this stagnation period were the closure of the Land Mortgage Bank of India and London, the Agra Bank and the Oriental Bank Corporation; the closing of the Government Savings Bank and the winding up of the National Mortgage Bank.

In 1908, there were in all 12 banks in the city, of which three banks *viz.*, Mercantile Bank of India Limited (1854)*, Chartered Bank of India, Australia and China (1858), and the National Bank of India Limited (1863) had their head-offices in London. Besides, four other banks *viz.*, Comptoir National d' Escompte (1861), Hongkong and Shanghai Banking Corporation (1869), Yokohama Specie Bank Limited (1894), International Banking Corporation (1904) had their head-offices at Paris, Hongkong, Yokohama and New York, respectively. The branch of the Alliance Bank of Simla was opened in Bombay in 1903. The Bank of Bengal (Agency) was established in Bombay in 1867.

In addition, the head-offices of three more banks *viz.*, Bank of Bombay, Bank of India, and Indian Specie Bank Limited, were opened in Bombay in the years 1868, 1906 and 1906, respectively.

The development of the commercial banks since 1910, reflects the industrial and the economic growth of the country. The city of Bombay, being an industrial and trade centre, had a good share in the development of commercial banking. The Swadeshi movement that began in 1905 also gave a stimulus to Indian commercial banking and many of the big banks, such as the Central Bank of India and the Bank of India, were established during this period. There was a boom in commercial banking during 1906-1913 which was followed by a crisis during 1913-17. During the crisis, 87 banks failed, the majority of them were the small and weak banks, but the crisis weakened the confidence of the people in the banking system.

A large number of mushroom banks had been established by 1913 (in Western India, as in U.P. and Punjab). They conducted their business in a reckless manner. Their aggregate subscribed and paid-up capital were only 40 and 14 per cent, respectively of the authorised capital. They adopted high sounding names and there was no law to prevent them

* The year in bracket shows the year of establishment of the Bombay branch.

from resorting to any malpractices and undesirable means. There was mismanagement of funds and the directors misappropriated the funds.

The liquid assets being low, the financial position of the banks was precarious. The larger banks were rather operating on sound lines and were able to withstand the crisis. The difficulties of the banks during crisis were aggravated by the absence of a central bank and lack of co-ordination between these banks, presidency banks and the exchange banks.

There was a brief respite from 1918 to 1921, during which only 21 banks with a total paid-up capital of Rs. 14 lakhs failed. The war and the post-war boom gave another impetus to the starting of banks and a large number of banks, especially for financing industries were established. The post-war boom not merely in banking but also in the economy ended in 1922 and the number of bank failures increased. During 1922-24, it stood at 234 with a total paid up capital of Rs. 6 crores and 10 lakhs. One of the important banks was the Tata Industrial Bank which failed in 1923 and was merged later with the Central Bank of India. Of the 342 banks that failed in the country during 1913-14, 49 were in the province of Bombay, the largest number being in Punjab (81). During the Swadeshi movement of 1906, a large number of banks were established in Bombay due to the existence of the port and the speculative activities in cotton and silver in the market.

The dissatisfaction with the banking system led to a demand for enquiry in its working. In 1929, the Government of India appointed a Central Banking Inquiry Committee for a comprehensive survey of the banking system.

The development of commercial banks reflects that the multiplication of branches is a more marked feature of the growth of our banking system rather than extension to new places. The competition for new branches had been chiefly between the Imperial Bank of India and the Indian Joint-stock banks; after 1920 the branch expansion by exchange banks was relatively slow. By 1936, out of the total branches of 1450, 99 belonged to exchange banks and 360 to Imperial Bank of India and out of the remaining two-third belonged to the smaller banks. The biggest six Indian banks had their branches concentrated in the city areas. The narrow area covering chiefly the Bombay province served by the Bank of India is the indicator of the deliberate policy to adhere to the biggest industrial and commercial centres of the land and that also in the British territory.

The details of bank failures in Bombay are given below:—

(1) *Bombay Banking Company* :—It was established in November 1898 and was liquidated during the banking crisis and panic of 1913-14.

The bank had achieved reputation and inspired confidence due to one of the directors being an eminent medical practitioner of Bombay. The agents were given full freedom by the directors and they used the funds for loans to themselves and prepared false balance-sheets. The shareholders were given good dividend and so did not inquire into the working of the Bank. But a suspicion was created in 1912 when the manager took a trip to United States of America and the depositors withdrew an amount of Rs. 5 lakhs in 1912-13. The director continued to endorse the working of the Bank and to assume the responsibilities he incurred for the *hundis* submitted to him. But the Bank had to suspend payments, when the withdrawals increased due to the failure of Central Bank of India in Bombay and the agents declared themselves insolvent. The liquidators reported that the bank only maintained one daybook and ledger and they suspected that the registers of securities and pre-notes were suppressed.

(2) *The Pioneer Bank, Bombay* : It was established in September 1911 and liquidated in December 1916. Its authorised and subscribed capitals were Rs. 50 and Rs. 15 lakhs, respectively and it collected just Rs. 2 lakhs as paid-up capital. In 1913, its deposits were to the tune of Rs. 3 lakhs. Most of the paid-up capital was fake, because as soon as it was collected on the shares it was loaned to the same persons on the security of the same shares. The advantage of this was taken by persons in financial difficulties. When petitions were made on this ground for the winding up of the bank it was argued that this related to internal management. But it was liquidated in 1916.

(3) *Credit Bank of India* : The bank was started in 1909, with an authorised capital of Rs. 100 lakhs, subscribed capital of Rs. 50 lakhs and paid-up capital of Rs. 10 lakhs. The bank gathered in its fold persons who did not have any training in their jobs. When the bank was liquidated in 1916, the manager of the bank, Jaffer Joosab pleaded ignorance; he even did not know the meaning of the term, 'bill of exchange'. Even the Chairman of the Board of Directors and the auditor pleaded ignorance for all the errors at the trial case.

(4) *The Tata Industrial Bank* : It was established in 1917 and was warmly supported due to the house of Tatas. But the termination of the war inflation and prosperity and the crisis of 1920, led to the decline in its dividends. These induced sobriety and the shareholders ultimately forced the amalgamation of the Bank with the Central Bank of India. The Bank was established with the objective of financing the industries of Tatas, but the post-war deflation accompanied by the difficulties of the Tata group of industries, disappointed the shareholders who had hoped for very high dividends for the Bank and they voted heavily for amalgamation in July 1923.

(5) *The Indian Specie Bank* :—It was established in March 1914, with an authorised capital of Rs. 2 crores, subscribed capital of Rs. 1.50 crores and paid-up capital of about Rs. 75 lakhs. It was due to the initiative and enterprise of Mr. Chunilal Saraiya who though a medical person had experience in banking. He played an important part in establishing the Bank of India in 1906 but as the authorities refused to appoint him as its manager, he withdrew. His reputation and ability was highly rated and he was able to attract eminent persons from business life of Bombay to be the directors. But events proved that Mr. Saraiya's inclination was rather speculative. There was a strong rumour that the Bank was cornering silver and in spite of the denial by the Chairman, the *Commerce* of Calcutta reported that the bank was buying the silver in market on a large scale. Yet the shares of the Bank were put up for Rs. 52 to Rs. 66. The businessmen and the local journal commended the manager Mr. Saraiya for earning a profit of Rs. 25 lakhs at a stroke on the sale of silver at enhanced rates to the Secretary of State in England and the Finance member in India. The Bank came to be linked up with well-known speculators in the city. The Bank resorted to various malpractices, creation of fictitious debtors was active in cotton share speculation and had accumulated losses of more than Rs. 1 crore. The failure of People's Bank in Lahore and the Credit Bank in Bombay in 1913 created panic in public. But the bank paid out Rs. 90 lakhs at the time of the run by the depositors. Yet deposits began to fall. Mr. Saraiya tried to re-establish the confidence and the bank continued to deal in a variety of speculative activities. Ultimately, the sad demise of the manager forced the directors to petition to the Government for voluntary liquidation.

By 1939, the commercial banking structure was firmly established in the country and especially in the industrial cities including Bombay.

However the commercial banks by 1939 had not yet touched two fields. They financed only the internal trade of the country, leaving the foreign trade largely to exchange banks. Secondly, they had little to do with the marketing of agricultural produce or discounting of agricultural bills.

The outbreak of the war and the extension of hostilities by Japan in December 1941, led to large withdrawals of deposits from the banks due to the panic created by the war. But the deposits began to return soon and on the whole the Indian banks stood well at the first shock of war. Thereafter, there was an enormous growth in bank deposits. The expansion of currency was primarily responsible for the rise in deposits, but the rise in prices of shares and commodities and general rise in prices also increased the demand for credit. In August 1939, the deposit liabilities of the scheduled banks were Rs. 249 crores, but at the end of July 1944, they had risen

to Rs. 759 crores. The demand deposits increased more than the time deposits. Between September 1939 and September 1944, demand liabilities rose from Rs. 1,33 crores to Rs. 5,78 crores, whereas the time liabilities increased from Rs. 1,02 crores to Rs. 1,86 crores. This reflected a higher liquidity of assets of the banks. The cash ratio of the banks was high at 15 per cent by 1945. Advances and bills though higher declined as percentage to total deposits from about 53 in 1939 to 30 in 1944. The opportunities for commercial investments were curtailed and the banks diverted their funds to investment in war loans which rose to 40 per cent of total assets by the end of the war. The volume of capital and reserves had grown but not in proportion to the immense increase in deposits.

Another notable war-time trend was the great increase in the number of banking offices. In the eighteen months ending June 1944, the increase in number was by 688; in the quarter ending December 1943 it was 160; while in the first three months of 1944, the increase was 156. The rate slowed down and was 100 upto September 1944. The increase almost entirely was accounted for by the scheduled banks. Even as regards the expansion of deposits, it was mainly as regards the big banks, the 'Big Five' as they were known in addition to the Imperial Bank of India, the Bank of India, the Allahabad Bank, the Central Bank of India, Bank of Baroda and the Punjab National Bank. The smaller banks opened new branches without a parallel increase in resources, which was a source of weakness for the banking structure. Again new offices were largely opened in big towns to the neglect of small ones and this led to unhealthy branch competition and uneven development of the banks in the country as a whole.

Under the conditions of cheap money, low rates of interest, the bank rate remaining at 3 per cent during the war period, the commercial banks were able to expand and improve their position in the financial structure.

With the end of the war, the earnings and profits of the banks declined sharply and many banks were in difficulties and a number of banks failed. The partition of the country with Independence in 1947, adversely affected a number of banks which had branches or head-offices in Bengal and Punjab. A banking crisis was avoided by the Reserve Bank of India providing the necessary help to these banks. Yet a few banks failed during this period. By 1949, the economic conditions in the country were normal but the deficits in the budgets of the Union Government continued, which meant continuous expansion in the currency supply. The banking deposits continued to expand and with that the branches of the commercial banks. The Reserve Bank realised the need for the regulation of the banking system and suggested legislation which led to

the Banking Companies Act of 1949. The banking system suffered from certain basic defects.

The defects were to be removed in the interest of establishing a sound banking system which was necessary for the rapid growth of the economy. The Banking Companies Act, 1949 was enacted for achieving this objective. Formerly, the joint-stock banks were governed by the General Companies Act of 1913. This Act was amended in 1936, and included some specific provisions for the banks such as, a bank could not be managed by a managing agency. Yet, there was no specific regulation of the banks. The Banking Regulation Act, 1949, is a comprehensive legislation applied to all banking companies including co-operative banks.

The period from 1949 to 1955 can be described as that of amalgamation of the banks and the consolidation of the banking structure. With the powers acquired by the Reserve Bank, a number of amalgamation of commercial banks were brought about. Small banks were amalgamated with bigger banks and the uneconomic branches of the banks were closed down. With the removal of the weak links in the banking structure there was an improvement in the efficiency of the banks. The deflationary trend during 1952-54 reduced the profits of banks and compelled the banks to reduce their costs of operations by improving their efficiency.

Under the Banking Companies Regulation Act of 1949, the Reserve Bank of India was given the responsibility of assisting as an intermediary in proposals for amalgamation of banks on a request from such banks. Reserve Bank of India attempted to merge the weak and inviable banks with strong and viable units. But the procedure of amalgamation was slow and complex. The Act was amended in 1950 to simplify the whole process. Yet amalgamations depended on the initiative and will of the banking companies. So the consolidation of the banking structure was dependent on the mercy of the small banks. But when the Pilai Bank was closed in 1960 and the Laxmi Bank was compulsorily wound up by the High Court, Bombay, the Indian banking system was widely disturbed. Thereupon the Banking Companies (Second Amendment) Act, 1960 was passed empowering the Reserve Bank of India to apply to the Central Government for an order of moratorium in respect of a weak and inviable bank. The Reserve Bank of India was empowered to prepare a scheme of reconstruction of the banking company or its amalgamation with another banking company, which had to be approved by the Central Government with modifications, if any. Thus the Reserve Bank of India was empowered to compulsorily merge a sick bank with a healthy bank. In preparing the scheme, the Reserve Bank of India was working with the State Bank of India; some weak banks were merged with the State Bank as its subsidiaries. Between 1960-65, the total number of mergers and amalgamations under the Act were 188, out of which voluntary amalgamations

accounted for 20 only. Between 1960-65, 56 banks were granted moratorium. Of these, 45 were compulsorily merged with other banks and one was allowed to go into compulsory liquidation. Three banks were ordered to be wound up and one was allowed to amalgamate voluntarily with another bank. The number of compulsory mergers was 30 in 1961, though it slowed down later on.

The bank mergers have been greatly beneficial to transferee banks, transferor bank, depositors and the solidarity of the banking structure of the country as a whole. As the amalgamations were brought about through the Reserve Bank of India, the interests of the depositors were properly looked after. The weak and inviable banks were being eliminated and this improved the strength of the banking structure. The quality of the structure went on improving and a healthy tone was provided to the system. In the following statement is shown the statistics of the bank mergers :—

Year	Total number of bank mergers	Year	Total number of bank mergers
1960 ..	7	1963 ..	22
1961 ..	36	1964 ..	79
1962 ..	11	1965 ..	33
1960–65		Total ..	188

Training institutes for bankers were established by the Reserve Bank and internal examinations were introduced. The trained banking personnel were being provided to the banks. All this introduced efficiency and maturity in the operations of the banks. The Reserve Bank was also able to establish its effective control over the commercial banks. The use of the powers given by the Banking Regulation Act of 1949 and the functions of licensing, inspection, supervision established a continuous contact between the banks and Reserve Bank of India. By the end of the First Plan, 1955-56, the Reserve Bank of India had established its position as the leader of the commercial banks and the money market in the country.

With economic development of the country under the plan and the rapid growth of industries, the demand for credit went on expanding. The commercial banks had consolidated their position during the earlier period and were able to expand credit after 1956.

There have also been a number of basic functional and structural changes in the working of the commercial banks. In a survey of the Reserve Bank of India in April 1972, according to the data supplied by 43 banks (including all Indian Banks with deposits of Rs. 25 crores and above), the medium-term credit to industry provided by them amounted

to Rs. 78.6 crores which was equal to 14 per cent of their total outstanding credit to industry. The establishment of the Industrial Development Bank of India has shifted the responsibility of financing large industries from the commercial banks, yet the refinancing of industrial loans advanced by commercial banks stood at Rs. 38 crores on June 30, 1969. In spite of the State financing institutions, the commercial banks are extending their role in providing term finance to industries.

There was also a change in the security pattern of bank credit. For bank advances, between 1951 and 1962, advances against agricultural commodities rose by 51 per cent, while those against manufactures and minerals rose by 100 per cent which again reflects the importance of new industries.

There have been certain structural changes in the commercial banking system. An important feature has been a marked reduction in the number of banks through the elimination of weaker units as a result of voluntary or compulsory mergers. There had been no contraction in banking facilities, though there had been a decline in the number of banks from 566 in 1951 to 89 in June 1969. During this period there had been an increase in the number of bank branches from 4,151 to 8,254. There had been a rapid expansion of branches to the non-urban areas.

With the nationalisation of fourteen major Indian banks by the ordinance in July 1969, a revolutionary change took place in the banking structure. These 14 banks had 3,770 branches (49 per cent of the total), deposit liabilities of Rs. 2,742 crores (58 per cent of the total) and advances of Rs. 1,744 crores (55 per cent of the total) on 31st December 1968. About 83 per cent of the banking business was controlled by the Public Sector (1970) with these fourteen banks and the State Bank of India and its subsidiaries. Out of the remaining 17 per cent business in the private sector, 6 per cent of the banking business was in the hands of the Indian scheduled banks (36), 10 per cent was in the hands of banks incorporated outside India (15) and the non-scheduled banks having only 1 per cent of the total. Through the control of the Reserve Bank of India and the institutions such as Industrial Development Bank of India and Agricultural Refinance Corporation, the commercial banking structure is linked up to various State-sponsored financial institutions in the country and an attempt is made to build up a co-ordinated financial infrastructure consistent with the needs of rapid economic growth of the country.

Before the nationalisation of commercial banks in 1969, an experiment with a scheme of social control of banks was introduced. It was short-lived, yet it led to the establishment of the National Credit Council at an all-India level. It was envisaged as an instrument of credit planning and it was to lay down guidelines for the banks with regard to the provision

of credit. On the council various economic interests were represented. The council indicated the quantity and quality of credit that banks should furnish for each sector and each industry in the economy.

Under the social control policy, the banking companies were asked to reconstitute their board of directors to represent the various economic interests in the country. Each board was to have a professional banker as it's full-time chairman. In 1968, the Banking Regulation Act was amended accordingly to implement the policy of social control over banking credit. Every foreign bank was to have an advisory board. The banks were prohibited from advancing loans to directors or to concerns in which the directors were interested. The social control provisions widened the scope of the powers of Reserve Bank of India as regards advances of the commercial banks. The Government was even empowered to take over any bank which consistently refused to follow social control provisions and policies.

The Government of India set up the National Credit Council with the Finance Minister as Chairman and the Governor of the Reserve Bank of India as the Vice-Chairman.

The Indian commercial banks accordingly reconstituted their boards and the foreign banks had set up advisory boards. The policy of social control was introduced by 1967, but the experiment was hardly implemented and there was the demand for nationalisation of commercial banks. A number of arguments were advanced in favour of the proposal and they were accepted as the basis for the decision of nationalisation of 14 big Indian commercial banks in 1969.

It was argued that over the past twenty years, a very close link had been established between the commercial banks and well-known industrial houses. This led to a kind of concentration of financial and economic power which was reflected in the functioning of the commercial banks. Further the directors of these banks attempted to use the resources of the banks for the industrial concerns in which they were interested. This led to the diversion of funds from the rural and semi-rural sectors to the large-scale industries situated in the urban areas. The small industrial and business units suffered from the scarcity of funds as they had to compete with the big concerns. These arguments against the functioning of private commercial banks were examined by a number of individuals and groups in the country. For quite some time in 1968, after the introduction of social control policy, discussion on the question of nationalisation of commercial banks was very wide-spread. Ultimately in 1969, the Government announced its decision to nationalise 14 big banks in the country. The private banking companies were compensated by the Government. The total amount of compensation payable to 14 nationalised banks had been determined at Rs. 87.4 crores.

The immediate impact of nationalisation was the acceleration of deposit mobilisation and of lending to the priority sectors. Aggregate deposits of the scheduled commercial banks registered an increase of Rs. 621 crores in 1969, as against a rise of Rs. 493 crores in 1968. This can be largely attributed to the ambitious plan of branch banking adopted by the nationalised banks. Direct and indirect finance extended to agriculture by the nationalised banks increased from Rs. 27 crores at the end of June 1969 to Rs. 66 crores at the end of June 1970. By adding the assistance given by the State Bank and it's subsidiaries, the total assistance to agriculture rose upto Rs. 216 crores at the end of June 1970. The advances of the nationalised banks in favour of road transport operators had been more than doubled during the period of seven months rising from Rs. 6 crores to Rs. 13 crores. Self-employed persons received Rs. 2 crores worth of bank finance at the end of January 1970 as against Rs. 30 lakhs at the end of January 1969. Taking the entire public sector banking system, the assistance to the newly defined priority sectors and the so-called neglected sectors increased by Rs. 166 crores to Rs. 604 crores by the end of January 1970. The target for the opening of the branches especially in the rural areas had been placed at 71,350 in 1970, as against 1,035 in 1969.

Even after the Regulation of Banking Act of 1949, there had been failures of banks from year to year. The bank failure partly were attributed to the laissez-faire policies of the Government and the laxity of the laws and dishonesty of the promoters. The bank failures had a very deterrent effect on the confidence of the public in the banking institutions, and there were always cumulative runs on the banks with the consequential danger of banking crisis. In 1950, the Rural Banking Enquiry Committee had stressed the need for the establishment of a Deposit Insurance Corporation but no decision was taken. In 1954, the committee on finance for private sector under the Chairmanship of Shri A. D. Shroff had recommended the introduction of deposit insurance in the country.

The Banking Companies Act was also amended in 1960, to give additional powers to the Government and the Reserve Bank to provide for expeditious payments to the depositors of banks in liquidation, and rehabilitate banks in difficulties. But these measures were not sufficient, and hence, bank nationalisation was inevitable.

Banking in the city of Bombay : (1) *1960-66* : The data of the functioning and development of banks in the city of Bombay is available from 1960. The same is given in Tables Nos. 1 and 2.

During the period 1960-66, the number of reporting bank offices increased from 186 to 327. The total average of month-end deposit balances increased over the period from Rs. 3,48 crores to Rs. 6,65 crores;

TABLE No. 1

BANKING BUSINESS OF SCHEDULED COMMERCIAL BANKS BOMBAY CITY

(Rs. in crores)

Year	No. of reporting offices	Average of month-end deposit balance			Total debits to			Total of approved limits as at the end of the year				
								Cash Credits and Overdrafts		Other		
		Government and Quasi-Government bodies	Business and Individuals	Total (2+3)	Government and Quasi-Government bodies	Business and Individuals	Total (5+6)	Government and Quasi-Government bodies	Business and Individuals	Government and Quasi-Government bodies	Business and Individuals	Total (8+9+10+11)
	1	2	3	4	5	6	7	8	9	10	11	12
1960 ..	186	41.3	307.1	348.4	545.8	5,652.0	6,152.8	4.8	317.6	....	173.9	496.3
1961 ..	204	45.6	313.4	359.0	612.4	5,938.4	6,550.8	1.8	321.7	....	185.3	508.8
1962 ..	224	48.6	331.4	380.0	692.7	6,446.6	7,139.3	5.3	382.0	2.3	207.7	597.3
1963 ..	266	64.6	383.6	448.2	893.5	6,653.6	7,547.1	9.6	488.8	0.8	255.8	755.0
1964 ..	299	77.0	454.8	531.8	1,140.3	7,736.6	8,876.9	20.8	523.0	1.3	316.4	861.5
1965 ..	321	78.8	532.1	610.9	811.5	8,792.0	9,603.5	23.8	558.2	0.7	404.1	986.8
1966 ..	327	81.0	583.6	664.6	1,019.4	10,063.5	11,082.9	26.8	629.8	4.8	365.0	10,026.2

TABLE No. 1—*contd.*

(Rs. in crores)

Year	Debits to Cash Credits and Overdrafts		Average of month-end bank Loans and Bills		Credit outstanding during the year Cash Credits and Overdrafts		Total (15+16+17+18)	Annual Rate of Turnover of Current Deposits	Overall Annual Rate of Turnover
	Government and Quasi-Government bodies	Business and Individuals	Government and Quasi-Government bodies	Business and Individuals	Government and Quasi-Government bodies	Business and Individuals		Business and Individuals	Business and Individuals
	13	14	15	16	17	18	19	20	21
1960 ..	8.9	1,998.5	....	89.8	1.8	185.1	276.7	39.6	15.8
1961 ..	19.3	2,163.4	....	97.9	0.7	208.9	307.5	46.0	17.0
1962 ..	39.50	2,370.2	1.0	100.6	2.2	207.6	311.4	50.0	16.3
1963 ..	91.2	3,207.8	2.4	144.3	3.8	282.8	433.3	49.4	15.1
1964 ..	121.2	3,898.2	2.6	174.2	11.9	319.4	508.1	48.2	16.3
1965 ..	226.4	4,770.2	5.2	185.7	19.0	371.6	581.5	43.0	16.9
1966 ..	334.7	5,079.3	5.3	223.8	15.9	373.5	618.5	51.4	17.3

TABLE

DEPOSITS, CREDITS AND OVERDRAFTS WITH

Year	No. of reporting offices	Average of month-end deposit balances			
		Current	Savings	Fixed	Total (3+4+5)
1	2	3	4	5	6
1960 ..	186	1,36.7	36.7	1,75.0	3,48.4
1961 ..	204	1,25.1	42.5	1,91.4	3,59.0
1962 ..	224	1,24.7	47.9	2,07.4	3,80.0
1963 ..	266	1,35.8	62.2	2,50.2	4,48.2
1964 ..	299	1,57.7	75.0	2,99.2	5,31.8
1965 ..	321	1,89.3	90.8	3,30.8	6,10.9
1966 ..	327	1,87.7	1,19.6	3,57.3	6,64.6

No. 2

SCHEDULED COMMERCIAL BANKS, BOMBAY

(Rs. in crores)

Total Debits to				Total of approved limits of cash credits and overdrafts as at the end of the year	Debits to cash credits and overdrafts	Annual rate of turnover of Current Deposits	Overall annual rate of turnover
Current Deposit Accounts	Savings Deposit Accounts	Fixed Deposit Accounts	Total (7+8+9)				
7	8	9	10	11	12	13	14
54,31.6	62.3	7,03.9	61,97.8	3,22.4	20,07.4	39.7	16.2
57,40.5	73.7	7,36.6	65,50.8	3,23.5	21,82.7	45.9	17.7
62,40.9	92.3	8,06.1	71,39.3	3,87.3	24,09.7	50.0	16.9
66,90.1	1,26.2	7,30.8	75,47.1	4,98.4	32,99.0	49.3	15.8
78,00.1	1,53.3	9,23.5	88,76.9	5,43.8	40,19.4	49.5	16.8
82,96.6	2,06.0	11,00.9	96,03.5	5,82.0	49,96.6	43.8	17.2
96,43.0	3,18.5	11,21.5	1,10,82.9	6,56.6	54,14.0	51.4	17.8

current deposits increased from Rs. 1,37 crores to Rs. 1,88 crores; savings from Rs. 37 crores to Rs. 1,20 crores; and fixed deposits from Rs. 3,48 crores to Rs. 6,65 crores. The total debits to total deposits increased from Rs. 61,98 crores in 1960 to Rs. 110,83 crores in 1966. Total approved limits as at the end of the year (*i.e.*, cash credits and overdrafts) increased during the period from Rs. 3,22 crores to Rs. 6,57 crores and the debits to cash credits and overdrafts rose from Rs. 20,07 crores to Rs. 54,14 crores. Annual rate of turnover of current deposits increased from 40 to 51 which reflects an increase in the velocity of circulation of money. The overall annual rate of banking turnover increased from 16.2 to 17.8. All these rising trends indicate the expansion of demand for and the facilities for the provision of credit in the city. The expansion of industries over the period and the opening of new branches increased the deposits of the commercial banks and also the mobilisation of larger financial resources by the banking system.

The development in banking in the city of Bombay can be further reviewed in the context of the development in Maharashtra. The Reserve Bank data gives the trends over the period 1960 to 1966. The data for 1960 relates to the former bilingual State and therefore the data from 1961 to 1966 is relevant. The total number of reporting banking offices in the State increased from 525 in 1961 to 811 in 1966. Total deposits (average month-end deposit balances) increased over the same period from Rs. 4,18 crores to Rs. 8,04 crores. They were mostly the deposits of the business and individuals. The deposits of Government and quasi-government bodies in 1966 were Rs. 95 crores. The credits advanced by the banks were mainly in two forms, loans and bills and cash credits and overdrafts. Total of the approved limits by the banks in Maharashtra under both these heads were Rs. 5,63 crores in 1961 and Rs. 11,44 crores in 1966. These reflect the increasing demand for credit from the private business sector due to the expansion of industries and business in the State. Annual rate of turnover of current deposits (businessmen and individuals) in 1961 was 45 which increased to 51 by 1966, reflecting an increase in the velocity of circulation of money due to the larger business demand for banking facilities.

The data in relation to the city of Bombay indicates similar trends as those in Maharashtra, but in a more sharper manner. The number of reporting offices in the city increased from 186 in 1960 to 327 in 1966. The average of month-end deposit balances increased from Rs. 3,48 crores in 1960 to Rs. 6,65 crores in 1966. Total debits to various individuals, Companies etc., increased over the period from Rs. 61,98 crores to Rs. 1,10,83 crores and the total of approved limits as at the end of the year increased from Rs. 4,96 crores to Rs. 10,26 crores. Debits to cash credits and overdrafts increased from Rs. 19,99 crores to Rs. 50,79

crores. Average of month-end bank credit outstanding during the year increased from Rs. 277 crores in 1960 to Rs. 619 crores in 1966. Annual rate of turnover of current deposits (businessmen and individuals) increased over the same period from 39 to 52, reflecting quite a sharp increase in the velocity of circulation of bank credit. All these trends indicate the rapid expansion of industries and business in the city of Bombay, more remarkable than in other areas of Maharashtra and the consequential expansion of credit and the banking facilities to these sectors. The commercial banks were able to expand their supply of credit in a flexible manner and satisfy the rising demand in the city.

(2) *1966-70* : Among the eight big cities in India, Bombay was the most important in respect of the total number of bank offices, deposits and credit. During 1966-70, Bombay added more offices and recorded higher increases in total deposits and credit than any other centre. Bank offices increased by 135. There has been quite significant increase in the deposits in city branches, though the growth rate of deposits in Bombay might appear lower than that in several other centres. However, considering the high level of deposits in the centre, the quantum of rise in terms of a percentage growth rate of 11.6 is actually quite substantial. The fact that Bombay combined the largest increase in offices and deposits with a fairly marked rise in the average deposit per office shows the extraordinary potential that the city offers for deposit mobilization. In Bombay, credit increased by a larger amount than deposits, the credit-deposit ratio was close to 100 per cent. For all banks in the metropolitan centres taken as a whole, new offices accounted for slightly more than a quarter of the total deposit increase over the period.

There was heavy concentration of banking in business areas. Although the number of offices situated in these areas was relatively small, a strikingly high proportion of the total banking business in the centre was handled by them. This was not merely in terms of credit but equally important in respect of deposits. The areas were further responsible for much of the deposit acceleration over the period 1966-70. The proportion of deposits secured by the offices in these areas was also considerable. In each of these centres, the business areas had well over half of the city's aggregate deposits, though the number of bank offices operating in these areas was accounted for around a third of the total. In Bombay, during 1966-70, out of the 135 new offices opened, only 21 were in this area group while in Calcutta, the proportion was slightly higher at 15 out of 75. It can be stated that the intensity of banking in these areas increased as indicated by the sizable rise in the average deposits per office. The business areas were responsible for at least half the deposit increase in the city as a whole. The individual accounts may not be important here as in business areas, deposits would be mainly institutional

or commercial and generally consequent to or following an extension of credit.

The following statement shows the residential area-wise percentages of banking business undertaken in Greater Bombay in 1970:—

Residential* Area	Percentage of offices in the area to the total in the centre	Percentage of deposits in the area to the total in the centre
I	18.7	9.7
II	7.0	5.0
III	29.1	9.5
Total ..	54.8	24.2

Residential Area	Average deposits per office (Rs. in lakhs)	Percentage of credit in the area to the total in the centre	Average credit per office (Rs. in lakhs)
I	121.9	3.1	38.4
II	167.3	2.5	82.1
III	76.7	4.0	32.0
Total ..	103.8	9.6	40.6

The metropolitan cities provide remarkable scope for banking business. The marked rise in the average deposit per office indicated that the spread of the metropolitan city branch net-work had indeed been accompanied by an overall rise in deposits and not as was sometimes feared in business. The deposits that centre obtained from even a pure residential or non-business area of a city were generally higher than what an office in an urban or rural centre would bring in. The average deposit per office of rural branches of scheduled commercial banks was only Rs. 13.4 lakhs (September 1970). As against this the average even among the residential areas in Bombay was Rs. 103.8 lakhs. This degree of deposit potential was advantageous in evolving the strategy of branch expansion in Greater Bombay.

The following statement shows that in 1951, Bombay city accounted for over a fourth (26.5 per cent) of the all India figure of current deposits and less than a third (30.3 per cent) of their debits. Over the years, the share of big cities (Bombay, Calcutta, Madras and Delhi) declined and in 1966, Bombay and Calcutta accounted for 23.8 per cent and 14.5

* The details of areas covered under these residential groups are given on the subsequent page.

per cent of total current deposits, as regards debits to the share of these cities declined to 27.1 per cent and 22.0 per cent, respectively. The following statement gives statistics of current deposits, debits and turnover of current deposits in Bombay during 1951, 1956, 1961 and 1966:—

(Amount in crores of Rs.)

Particulars	1951		1956		1961		1966	
	Amount*	Percentage to all India total	Amount	Percentage to all India total	Amount	Percentage to all India total	Amount	Percentage to all India total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Current Deposits	1,11.2	26.5	1,34.4	29.2	1,25.1	24.6	1,87.7	23.8
Debits to Current Deposits Accounts	53,23.4	30.3	58,17.6	29.2	57,40.5	27.8	96,43.0	27.1
Turnover of Current Deposits	47.9	....	43.3	....	45.9	....	51.4	....

* Figures for the years 1951 and 1956 are year-end figures of deposits; while for the years 1961 and 1966 figures of amount are month-end averages during the years.

In 1951, the four big cities (Bombay, Madras, Calcutta and Delhi) accounted for as much as 60.6 per cent of total current deposits and 69.9 per cent of total debits. In 1966, these four cities accounted for 51.1 per cent of current deposits and 59.9 per cent of debits thereto. The turnover of current deposits in 1966 at Bombay was 51.4 crores; at Calcutta 68.2 crores; and at Madras 56.3 crores.

The following statements show the comparative statistics of banking business in Bombay:—

Particulars	1966	1970
Number of bank offices	347	482
Outstanding deposits (Rs. in crores)	7,30	11,29
Credit (Rs. in crores)	6,90	11,12
Average deposit per office (Rs. in lakhs) ..	2,10	2,34
Average credit per office (Rs. in lakhs) ..	1,99	2,31
Compound annual growth rate of deposits ..	N.A.	11.6
Compound annual growth rate of credit ..	N.A.	12.6

Particulars	Increase during 1966-70
No. of bank offices	135
Total deposits (Rs. in crores)	3,99
Total credit (Rs. in crores)	4,22

Average deposit per office of new offices at the end of every year of establishment	Rs. in lakhs
First year of establishment	15.61
Second year of establishment	35.54
Third year of establishment	50.40
Fourth year of establishment	60.30
Fifth year of establishment	80.57

Areas covered under the respective business and residential areas in Bombay are shown in the following statement :—

Area number	Areas covered
Business area I ..	Fort, Ballard Estate.
Business area II ..	Kalbadevi, Zaveri Bazar, Bhuleshwar, Mandvi, Opera House, Sandhurst Road, Lamington Road, Thakurdwar.
Residential area I ..	Substantial extent of business activities—Worli, Prabhadevi, Mahim, Bandra, Dadar, King's Circle, Sion, Wadala.
Residential area II ..	More selected or exclusive residential localities—Cumballa Hills, Walkeshwar Road, Peddar Road, Breach Candy, Colaba, Churchgate.
Residential area III ..	Less affluent or more middle class neighbourhoods—Chembur, Ghatkopar Vikhroli, Bhandup, Kurla, Mulund, Santacruz, Vile Parle, Andheri, Malad, Borivli.

The business area-wise information of banking business in Bombay during 1966 and 1970 is shown in the following statement :—

Business area	Percentage of offices in the area to the total in the centre		Percentage of deposits in the area to the total in centre		Contribution of the area to deposit growth in the centre	Average deposit per office (Rs. in lakhs)		Percentage of credit in the area to the total in the centre	Average credit per office (Rs. in lakhs)
	1966	1970	1966	1970	1970	1966	1970	1970	1970
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Business area I ..	17.0	13.4	58.8	58.5	58.0	7,27	10,16	74.1	12,67
Business area II ..	21.9	18.9	11.1	10.1	8.2	1,07	1,25	6.1	75
Total for Greater Bombay	38.9	32.3	69.9	68.6	66.2	3,78	4,96	80.2	5,72

TABLE No. 3

LIST OF COMMERCIAL BANKS* AND THEIR BRANCHES IN GREATER BOMBAY, AT THE END OF DECEMBER 1980

Name of Bank	No. of branch offices, sub-branch offices including head office, transacting banking business	No. of offices not transacting banking business, i.e. registered offices or administrative offices, etc.
(1)	(2)	(3)
Allahabad Bank	14	1
Andhra Bank	7	1
Bank of Baroda	69	10
Bank of Cochin	1	..
Bank of India	70	4
Bank of Karad	3	..
Bank of Madura	5	..
Bank of Maharashtra	58	..
Bank of Rajasthan	5	..
Banares State Bank	1	..
Bharat Overseas Bank	3	..
Canara Bank	59	6
Catholic Syrian Bank	2	..
Central Bank of India	62	6
Corporation Bank	15	1
Dena Bank	77	3
Federal Bank	4	1
Grindlays Bank	11	..
Habib Bank	1	..
Indian Bank	25	..
Indian Overseas Bank	29	1
Jammu and Kashmir Bank	1	..
Karnatak Bank	5	..
Laxmi Commercial Bank	2	..
Maharashtra State Co-operative Bank	32	..
New Bank of India	8	..
Oriental Bank of Commerce	9	..
Punjab and Sind Bank	11	..
Punjab National Bank	20	11
Ratnakar Bank	2	..
Reserve Bank of India	2 (1 central office)	..
Sangli Bank	14	..
South Indian Bank	2	..
State Bank of Bikaner and Jaipur	8	..

* *Directory of Bank Offices*, December 1980, Reserve Bank of India.

TABLE No. 3—*contd.*

Name of Bank	No. of branch offices, sub-branch offices including head office, transacting banking business	No. of offices not transacting banking business *i. e.*, registered offices or administrative offices, etc.
(1)	(2)	(3)
State Bank of Hyderabad	11	..
State Bank of India	85	1
State Bank of Indore	3	..
State Bank of Mysore	5	..
State Bank of Patiala	1	..
State Bank of Saurashtra	5	..
State Bank of Tranvancore	2	1
Syndicate Bank	37	3
Tamilnadu Mercantile Bank	1	..
Union Bank of India	65	1
United Bank of India	14	1
United Commercial Bank	33	1
United Industrial Bank	1	..
United Western Bank	15	1
Vijaya Bank	17	2
Vyasa Bank	3	..

Deposits and advances of all scheduled commercial banks in Bombay are given in the following statement:—

(Rs. in lakhs)

As on last Friday of	No. of functioning offices	No. of reporting offices	Deposits (Rs.)	Advances * (Rs.)
(1)	(2)	(3)	(4)	(5)
June 1970	480	469	10,40,60	10,34,56
June 1973	606	606	15,83,67	14,13,94
December 1975.. ..	N.A.	729	21,70,78	20,36,66

The above statement reveals the increasing trend in the total deposits and advances of all scheduled commercial banks in Bombay along with the number of banking offices. The percentage of deposits to advances has also increased from about 87.5 to 91.0 during 1973-75.

* In the case of advances, the reporting offices are recorded as 463.

The deposits and advances of scheduled commercial banks in Bombay according to type as on last Friday of June 1973 revealed that the fixed deposits were the largest in amount.

As against this, the savings deposits as on last Friday of June 1973 stood highest in respect of number of accounts, and the same are shown in the following statement :—

(Amount in lakhs of Rs.)

No. of Functioning offices	No. of Reporting offices	Current		Savings	
		No. of accounts	Amount	No. of accounts	Amount
606	606	3,40,441	3,93,34	2,34,8,673	3,12,43

Fixed		Others		Total	
No. of accounts	Amount	No. of accounts	Amount	No. of accounts	Amount
6,64,704	8,46,73	22,233	28,40	33,76,051	15,80,90

The affluent society and businessmen have the tendency to put large amounts in the fixed deposit accounts. However, the number of fixed deposits is generally less than that of savings deposits.

The deposits and credits of 939 scheduled commercial banks at the end of March 1981 amounted to Rs. 50,50,87 lakhs, and Rs. 47,21,74 lakhs, respectively.

Table No. 4 reveals the occupation-wise classification of outstanding credit of scheduled commercial banks in Greater Bombay.

TABLE No. 4

Occupation-wise Classification of Outstanding Credit of Scheduled Commercial Banks in Greater Bombay

(Amount in thousands of Rs.)

Occupation	As on the last Friday of			
	June 1973		December 1975	
	No. of Accounts	Amount	No. of Accounts	Amount
1. *Agriculture and Allied Activities* :	855	25,49,11	714	38,21,62
1. Agriculture excluding plantations	492	20,66,97	391	35,88,47
(*i*) Direct finance ..	306	1,09,11	176	3,11,17
(*ii*) Indirect finance ..	186	19,57,86	215	32,77,30

TABLE No. 4—*contd.*

Occupation	As on the last Friday of			
	June 1973		December 1975	
	No. of Accounts	Amount	No. of Accounts	Amount
2. Allied activities ..	337	1,84,02	299	1,94,06
3. Plantations ..	26	2,98,12	24	39,09
II. *Industry:* ..	34,010	7,01,70,21	39,546	11,13,97,30
1. Mining and quarrying ..	50	96,10	36	1,27,80
2. Manufacturing ..	23,639	6,32,87,54	28,075	10,01,30,18
3. Electricity generation, transmission and distribution	236	17,88,17	275	22,47,70
4. Construction ..	562	16,09,91	643	17,23,02
5. Transport ..	3,623	13,09,70	3,407	34,85,45
6. Personal and professional services,	5,900	20,78,79	7,110	36,83,15
III. *Trade:* ..	24,995	2,41,70,69	26,118	3,02,69,60
1. Wholesale trade ..	17,558	2,25,76,66	17,556	2,79,11,71
2. Retail trade ..	7,437	15,94,03	8,562	23,57,89
IV. Personal loans (including consumer durables)	25,933	29,65,07	36,150	43,93,34
V. All others ..	26,412	97,72,79	29,724	70,68,86
Total bank credit (I+II+III+IV)	1,12,205	10,96,27,87	1,32,252	15,69,50,72
Of which : small scale industry ..	16,964	97,96,25	19,546	1,47,86,53

It can be seen from the table relating to occupation-wise classification of outstanding credit that the total bank credit of scheduled commercial banks increased from about Rs. 10,96 crores in June 1973 to about Rs. 15,69 crores in December 1975. The increase in the amount of bank credit can also be noticed in all the occupational groups, such as, agricultural and allied activities, industry, trade and personal loans.

This trend indicates the expansion of industries and business in Bombay. In the group of industries, manufacturing industries absorbed the highest amount of bank credit which amounted to about Rs. 6,33 crores in June 1973, and subsequently increased to about Rs. 10,01 crores in December 1975. As against this, the mining and quarrying industries had utilised the lowest amount of bank credit which amounted to about Rs. 92 lakhs and about Rs. 1,28 lakhs in June 1973 and in December 1975, respectively.

The classification of outstanding credit of scheduled commercial banks in Greater Bombay as in the month of June 1980* is shown below:—

Occupation (1)	No. of accounts (2)	Amount in 000's of Rs. (3)
Agriculture	5,536	490,7,52
Industry	37,682	19,85,22,26
Transport operators	10,337	2,75,13,29
Services	17,718	50,07,38
Trade	37,054	6,59,24,98
Personal loans	73,846	75,77,04
All others	59,932	1,08,29,29
Total Bank Credit	242,105	32,01,64,76
Of which for small scale units ..	24,264	2,54,69,94

Nationalised banks : By an ordinance of 19th July 1969, 14 banks were nationalised. They are (*i*) Central Bank of India, (*ii*) Bank of India, (*iii*) Punjab National Bank, (*iv*) United Commercial Bank, (*v*) United Bank of India, (*vi*) Canara Bank, (*vii*) Dena Bank, (*viii*) Syndicate Bank, (*ix*) Union Bank of India, (*x*) Bank of Baroda, (*xi*) Allahabad Bank, (*xii*) Indian Bank, (*xiii*) Bank of Maharashtra, and (*xiv*) Indian Overseas Bank.

All these nationalised banks have their branches located in Greater Bombay. Information regarding the working of some of these banks is given in the following pages.

(1) *Indian Overseas Bank* : The first branch of the Indian Overseas Bank in Bombay City was opened in the Fort area in September 1941 and upto nationalisation, nine more branches were added to the list and the number went upto 18 by the end of June 1973.

Upto June 1973, these eighteen branches together had gathered deposits to the tune of Rs. 22.87 crores which formed about 14 per cent of the total bank deposits in the country.

The type-wise break-up of deposits in these branches by the end of June 1973 is shown below:—

Type of Account	Amount (Rs. in lakhs)	Percentage to total deposits
1. Current accounts ..	6,59.02	28.8
2. Savings accounts ..	4,82.26	21.1
3. Term deposit accounts ..	11,45.97	50.1
	22,87.25	100.00

* *Banking Statistics*—BSR. June 1980, published by Reserve Bank of India.

Of the bank's total credit in the country, about 12.4 per cent *i.e.*, Rs. 12.15 crores was utilised to finance various sectors of the economy in Bombay city. The credit-deposit percentage ratio for all the eighteen branches together, stood at 53.1.

The following statement gives the amount of credit given by these branches to various sectors of the economy in Bombay by the end of June 1973:—

Type of credit	Amount (Rs. in lakhs)
(*a*) *Priority sector*—	
1. Agriculture	46.1
2. Small scale industry	1,53.5
3. Transport operators	14.2
4. Retail trade	18.4
5. Professional and self-employed	5.7
Total of priority sectors ..	237.9
(*b*) *Others*—	
1. Medium and large industry	4,28.5
2. Wholesale trade	4,11.4
3. Others	1,37.1
Total ..	977.0
Grand Total ..	12,14.9

Apart from the disbursement of the total credit of Rs. 12.15 crores to various sectors of the economy, the bank invested Rs. 4.60 crores in various securities issued by the State Government and other State sponsored agencies.

Since nationalisation, the bank has introduced several new services including a number of attractive need-based savings schemes.

(2) *United Commercial Bank :* Prior to the nationalisation of banks, the bank was known as the United Commercial Bank Ltd. and was established in Bombay in 1943. It is one of the biggest five commercial banks of the country. Upto September 1971, the bank opened 21 branches in Bombay.

Particulars of the loans advanced by the bank to small scale industries, agriculturists and others as on 31st December 1971 are shown in the following statement :—

Particulars	No. of Accounts	Amount (Rs. in thousands)
Road transport	83	8,51
Small scale industries	307	1,55,68
Retail trade	105	21,43
Agriculture	3	96
Small business	24	59
Professional and self-employed ..	30	1,29
Education	6	47
Exports	71	1,16,55

The type-wise deposits of all the Bombay branches of the bank are shown in the following statement :—

As on	No. of branches	Deposits (Rs. in thousand)				Advances (Rs. in thousands)	Bills (Rs. in thousands)
		Demand	Savings	Time	Total		
29th December 1967 ..	16	10,47,41	3,53,09	13,37,35	27,37,85	17,07,94	5,21,86
31st December 1971 ..	21	13,44,32	6,33,38	19,15,84	38,93,54	26,24,28	6,01,04

(3) *Central Bank of India* : The bank had opened 57 branch offices in Greater Bombay upto 1972, of which only 52 offices transacted banking business.

In 1968, all the branches together excluding ten branches had the total deposits of Rs. 35,87,60,000 and the number of accounts in all types of deposits stood at 1,49,849. The amount of total deposits alongwith the number of accounts in Bombay branches increased considerably in 1972 and the same stood at Rs. 89,28,49,000 and 3,05,816 accounts, respectively. This statistics reveals the progress achieved by the branch offices in Bombay.

Table No. 5 reveals the ownership of deposits of the branch offices of the bank in Greater Bombay as in 1972.

TABLE No. 5

OWNERSHIP OF DEPOSIT, CENTRAL BANK OF INDIA, BOMBAY BRANCHES, 1972

(Rs. in 000')

Total Deposits	Fixed Deposits		Current Accounts		Saving Deposits		Other Deposits		Total Deposits	
	No. of Accounts	Amount	No. of Accounts	Amount	No. of Accounts	Amount	No. of Accounts	Amount	No. of Accounts	Amount
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Manufacturing concerns ..	103	2,68,12	1,094	78,51	..	..	1	50,00	1,198	3,96,63
Trading concerns ..	295	57,12	12,501	8,82,57	38	3,02	3	1,13	12,837	9,43,84
Personal ..	50,425	30,16,50	5,141	2,45,00	214,474	27,79,70	6,442	1,03,82	276,482	61,45,02
Banking companies ..	1	4,00	15	3,95	..	..	..	..	16	7,95
Business ..	172	52,25	4,593	44,5,32	17	32	24	1,40	4,806	4,99,29
Public institutions and trusts	402	3,03,70	326	42,91	229	17,30	25	13,80	982	3,77,71
Others ..	3,660	2,26,03	3,487	2,34,45	1,836	39,68	512	57,89	9,495	5,58,05
Total ..	55,058	39,27,72	27,157	19,32,71	216,594	28,40,02	7,007	2,28,04	3,05,816	89,28,49

The following statement analyses the advances of the bank according to purpose in Greater Bombay in 1968 and 1972[1]:—

Purpose	1968		1972	
	No. of accounts	Amount (Rs. in '000)	No. of accounts	Amount (Rs. in '000)
(1)	(2)	(3)	(4)	(5)
Industry	103	1,39,09	669	9,68,42
Commerce	164	52,86	437	1,49,25
Agriculture	..	..	27	13,88
Personal and professional ..	298	28,02	1,000	70,79
All others	684	1,82,46	2,340	4,87,15
Total ..	1,249	4,02,43	4,473	16,89,49

The advances of the bank in Greater Bombay also revealed an increasing trend as the same increased from about Rs. 4,43 lakhs in 1968 to Rs. 16,72 lakhs in 1972.

The advances of the branches in Greater Bombay according to security are shown in the following statement :—

(Rs. in thousands)

Security	1968	1972
Food articles	12,00	20,52
Industrial raw materials	50,09	3,88,80
Plantation products	....	98
Manufacture and minerals	1,42,14	5,98,11
Other securities	2,38,48	6,64,03
Total secured advances	4,42,71	16,72,44

(4) *Bank of India* : The Bank of India was incorporated in September 1906 in Bombay under Act VI of 1882 with subscribed capital of Rs. 100 lakhs divided into one lakh shares of the face value of Rs. 100 each and the paid-up value of Rs. 50 each.

[1] The statistics for the years 1968 and 1972 exclude the advances of eleven and two branches, respectively as the same is not available with the Head Office of the Bank.

Of this, 55,000 shares were privately applied for and the remaining shares were offered for public subscription. A sum of Rs. 10 per share was payable on application, Rs. 15 per share on allotment and Rs. 25 per share two months thereafter. The National Bank of India Limited was the banker to the issue.

The bank started its business on 1st November 1906 in Bombay and by the end of the year, the working funds amounted to Rs. 70 lakhs. Even though, in the early stages the bank followed a conservative policy with regard to its operations, it was justified in view of the banking crisis of 1913. The bank overcame all the difficulties through careful management of its funds, especially by maintaining adequate liquidity. The steady increase in the business of the bank during the first decade called for a strengthening of its capital structure.

The bank adopted changes in the memorandum and articles enabling the bank to raise the authorised capital from Rs. 1,00 lakhs to Rs. 2,00 lakhs by the creation of one lakh shares of Rs. 100 each. The shares were issued for Rs. 50 lakhs at Rs. 50 paid-up value and the premium of Rs. 50 per share went to strengthen the reserve fund.

In 1920, the bank opened its first branch in Ahmedabad. In 1921, the bank was invited to manage the clearing house of the Bombay Stock Exchange. In 1927, the bank opened its branch at Bullion Exchange and soon after it took over the management of the clearing house of Bombay Bullion Exchange and the same is still continued.

The Great Depression of 1930 and the subsequent fall in the prices of agricultural commodities, such as, of oilseeds, cotton and raw jute affected the business of the bank adversely. It became difficult for the bank to recover several of its advances and interest rates began to soar. Besides, the book value of its investments also came down heavily. However, the bank emerged from the Depression with added strength, and during the decade 1929-39, the advances of the bank increased as also the working funds. The profits of the bank increased from Rs. 18.72 lakhs to Rs. 21.70 lakhs during the same period. During the decade 1929-39, the bank opened 12 new branches of which seven were in Bombay.

The Second World War created many acute problems for the bank. The initial reverses for the allies resulted in heavy withdrawal of funds from the bank, but thereafter the large defence expenditure incurred by the Government brought substantial increase in the deposits. After the War, the bank began to expand its activities abroad and opened its first foreign office in London in 1946. The post-war years marked the expansion of the bank's branches and operations in foreign countries.

In 1951, the paid-up capital of the bank was further increased by Rs. 50 lakhs and a premium of Rs. 50 lakhs was realised by the issue of shares.

The bank in 1968 set up specialised cells to deal with financing of agriculture, small-scale industries and other priority sector activities. Besides, the bank has also set-up a residential training college at Andheri to provide training to its staff.

Soon after the nationalisation of the bank in July 1969, the Bank of India Limited, became the Bank of India and the chairman was appointed as the custodian of the bank. The policies of the bank were progressively re-oriented to serve large national objectives.

Upto 1975, the bank had opened 66 offices in Greater Bombay, of which 64 were engaged in transacting banking business and 36 were equipped with the safe deposit vaults.

(5) *Canara Bank* : The Canara Bank was originally established in 1906 as the Canara Hindu Permanent Fund Limited which later became Canara Bank. The first branch of the Bank was started in Greater Bombay in 1928 and the same was located in Fort area. Upto 1971 the bank opened 40 branches in Bombay.

The various types of deposits increased tremendously from 1967 to 1971 as also the number of accounts in the Bombay branches of the bank. The same are given in the following statement :—

(Rs. in thousands)

As on the last Friday of December	Fixed Deposits		Current Account		Savings Deposits		Other Deposits	
	No. of accounts	Amount Rs.	No. of accounts	Amount Rs.	No. of accounts	Amount Rs.	No. of accounts	Amount Rs.
1967 ..	22 127	14,57,77	12,109	9,58,84	1,07,239	9,46,05	8,178	1,45,29
1969 ..	20.368	19,10,65	14,324	8,49,39	1,31,287	11,61,85	13,954	60,56
1971 ..	28,308	39,29,72	19,272	14,19,67	2,11,671	19,50,33	20,447	91,50

On the last day of March 1967, the overdrafts and cash credits of the branches in Greater Bombay amounted to Rs. 23.24 crores and the same increased to Rs. 34.67 crores on the same day of March 1971. The following statement further throws sufficient light on the growth of business of the bank in Greater Bombay.

As on the last Day of March	Advances including bills purchased and discounted to				Bills purchased and discounted (Amount) (Rs. in thousands)
	Industry		Trade		
	No. of accounts	Amount (Rs. in thousands)	No. of accounts	Amount (Rs. in thousands)	
1967 ..	977	13,98,75	2,067	7,52,51	15,25,32
1969 ..	948	17,65,11	1,648	6,17,50	19,26,36
1971 ..	2,166	25,29,66	1,677	8,99,03	31,45,20

(6) *Syndicate Bank* : The Syndicate Bank was established in 1925 at Udipi. Its first branch in Greater Bombay was started in 1937. Upto December 1975 the Syndicate Bank had opened 31 branch offices in Greater Bombay, of which only 28 were engaged in the banking transactions and the remaining were administrative offices. The registered office of the bank is now situated at Manipal in Karnatak State. The particulars of advances to the priority sectors by the branches in Greater Bombay as on the last Friday of February 1972 are given below :—

Name of priority sector	As on the last Friday of 1972	
	No. of Accounts	Amount (Rs. in thousands)
Road transport operators	154	16,84
Small scale industries	734	2,01,24
Retail trade	322	22,13
Agriculture (direct)	60	29,26
Small business	67	4,42
Professional	280	15,67
Educational	100	5,28
Exports	350	4,81,71
Total of all sectors ..	2,067	7,76,55

During December 1967 to December 1971, the deposits of the branches in Greater Bombay increased from Rs. 9 crores to about Rs. 30 crores and the amount of advances rose from Rs. 6 crores to Rs. 24 crores.

(7) *Union Bank of India* : The Bank was founded in the year 1919 and was incorporated on 11th November 1919 as a limited company.

The branch expansion of the bank in Greater Bombay is shown below:—

As on the last Friday of	Number of branches
December 1968	37
December 1969	42
December 1970	44
December 1971	46
December 1975	56

All types of deposits of the bank increased from Rs. 29 crores in 1966 to about Rs. 44 crores in 1971.

(8) *Bank of Baroda* : The first Bombay branch of the bank was opened on Apollo Street in 1919. In April 1961, the New Citizen Bank was amalgamated with the Bank and as a result, seven branches of the New Citizen

Bank were declared as the branches of the Bank of Baroda. Upto 1970, including these seven branches, there were, in all 43 branches of the bank in Greater Bombay.

The following statement gives the ownership of deposits of its branches in Greater Bombay as existed in 1969 :—

(Rs. in thousands)

Type of Deposit	No. of Accounts	Deposits (Rs.)
Fixed deposits	30,894	4,09,737
Current account deposits	20,849	1,75,656
Savings deposits	14,632	1,86,397
Other deposits	7,747	23,618
Total ..	74,122	7,95,408

The data for the years 1967 and 1969 further reveals the fact that the amount of advances according to purpose increased from Rs. 83 crores to about Rs. 97 crores as shown in the following statement :—

(Rs. in thousands)

Purpose	Year ended 1967		Year ended 1969	
	No. of accounts	Advances (Rs.)	No. of accounts	Advances (Rs.)
Industry	596	7,01,483	1,276	7,91,909
Commerce	592	72,357	1,133	90,242
Agriculture	1	1,871	10	987
Personal and Professional ..	1,139	28,422	3,032	42,285
All others	273	28,746	582	53,355
Total ..	2,601	8,32,879	6,033	9,78,778

The highest amount of advances was provided for the purpose of commerce and the smallest amount was granted for agriculture.

As regards the amount of advances according to security, the highest amount was recorded against the security of industrial raw materials and the same amounted to Rs. 695 lakhs in 1967 and Rs. 721 lakhs in 1969. However, the total secured advances of all the branches of the bank in Greater Bombay rose from Rs. 73 crores in 1967 to Rs. 78 crores in 1969.

(9) *Indian Bank* : The first branch of the Indian Bank was established in the Fort area as early as in 1936, but it took about 15 years to start its second branch at Mandvi. On the last Friday of December 1972, there were in all 15 branches of the bank in Bombay city. The number of branches, however, rose to 19 in December 1974. All these branches were equipped with safe deposit vault facility.

The deposits and advances of these branches are noted in the following statement :—

(Rs. in lakhs to decimal point)

As on the last Friday of	No. of branches	Deposits (Rs.)	Advances (Rs.)
December 1972	15	1,821·60	896·76
December 1973	18	2,278·74	1,109·15
December 1974	19	2,769·30	1,378·18

(10) *State Bank of India* : The origin of the State Bank of India goes back to the first decade of the Nineteenth Century, when the Bank of Bengal, the first of the three Presidency banks was established in 1806 and received its charter in 1809. The other two Presidency banks were the Bank of Bombay (1840) and the Bank of Madras (1842). The Imperial Bank of India was established in 1921 by amalgamation of the three Presidency Banks. Until 1935 *i.e.*, till the establishment of the Reserve Bank of India, the Imperial Bank of India acted as the sole banker to the Government. After the establishment of the Reserve Bank of India in 1935 the Imperial Bank ceased to function as banker to the Government. As the commercial banks including the Imperial Bank of India were prospering only in the urban sector, the All India Rural Credit Survey Committee recommended the creation of the State Bank of India by taking over effective control from the Imperial Bank of India.

The State Bank of India was accordingly constituted on 1st July 1955 as successor to the Imperial Bank of India under the State Bank of India Act, 1955. Latter, the State Bank of India (Subsidiary Banks) Act was passed in 1959 enabling the State Bank to take over eight former State associated banks as its subsidiaries. As a result of the merger of two of the subsidiaries, there are now seven subsidiaries, *viz.* (*i*) State Bank of Bikaner and Jaipur, (*ii*) State Bank of Hyderabad, (*iii*) State Bank of Indore, (*iv*) State Bank of Mysore, (*v*) State Bank of Patiala, (*vi*) State Bank of Saurashtra, and (*vii*) State Bank of Travancore.

Alike its predecessors, the State Bank of India along with some of its subsidiaries, conducts Government banking business as the agent of the Reserve Bank of India at centres where the latter does not have an office or branch of its banking department. Further, it also maintains currency chests and small coin depots at various centres all over the country ensuring adequate and continued circulation of currency notes amongst the public and withdrawing the used and soiled currency notes from circulation.

The bank is a major customer in the gilt-edged market. In addition to its scheme of financing of agriculture, the activities of the bank include financing of small-scale industries and small business, and foreign exchange

business. In fact in 1950, the bank formulated a liberalised scheme of financing small scale industries and is continually responding to the growing needs of this sector by providing increasing credit facilities on liberal terms and under simplified procedures. The bank's role in the field of export promotion is not confined to export financing alone but extends to exploring and developing new markets for Indian exports.

The first branch of the bank other than the main branch was established, at Girgaum in 1916, and the number of branches in Greater Bombay upto September 1974, increased to 50. Of these, only six branches did not provide the safe deposit locker facility.

Various schemes initiated by the bank include issuing of gift cheques, traveller's cheques, recurring deposits, premium prize deposit certificates, etc.

RESERVE BANK OF INDIA

History : The Reserve Bank of India was established on April 1, 1935 as per the Reserve Bank of India Act, 1934.

Its predecessor, the Imperial Bank of India performed certain central banking functions such as a banker to Government and a banker's bank to some extent. However, the regulation of note issue and management of foreign exchange continued to be the direct responsibility of the Central Government.* In 1926, the Hilton Young Commission recommended that the dichotomy of functions and division of responsibility for control of currency and credit should be ended. The Commission suggested the establishment of a Central Bank, to be called the ' Reserve Bank of India ', independently of the Imperial Bank whose separate continuance was considered necessary for enlargement of banking facilities in the country. The Gold Standard and Reserve Bank of India Bill to give effect to this recommendation was introduced in the Legislative Assembly in January 1927, but was dropped on account of sharp differences of opinion. The Indian Central Banking Enquiry Committee (1931) however, strongly recommended the establishment of the Reserve Bank at the earliest. The question again assumed importance during the process of constitutional reforms in India. Ultimately a fresh bill was introduced into the Indian Assembly on 8th September 1933 which was passed on 22nd December 1933. It received the Governor General's assent on 6th March 1934. After some preliminaries, the Bank was inaugurated on April 1, 1935.

The Bank was originally constituted on the pattern of leading central banks in Western countries. Its share capital was Rs. 5 crores, divided into five lakhs fully paid-up shares of Rs. 100 each. Since then there has been no change in the capital of the Bank.

* For details refer to *Reserve Bank of India, Functions and Working*, 1983, published by the Reserve Bank of India.

From January 1, 1949, the Reserve Bank entered upon its career as a State-owned undertaking. The Act of 1948 empowered the Central Government to issue such directions to the Bank as it might, after consultation with the Governor of the Bank, consider necessary in public interest.

Functions : The main functions of the Reserve Bank are broadly the same as those of central banks in other countries. It has the sole right to issue notes, and it acts as a bankers' bank, holding custody of their cash reserves and granting them accommodation in a discretionary way. The Bank possesses not only the usual instruments of general credit control such as the Bank Rate, open market operations and the power to vary the reserves requirements of banks, but also extensive powers of selective and direct credit regulation. The power of moral suasion is also employed in a comprehensive manner. Another, important function of the Bank is to conduct operations of Government, and to advise it on economic matters in general and on financial problems in particular. The Bank has also an important role to play in the maintenance of the exchange value of the rupee. It acts as the agent of the Government in respect of India's membership of the International Monetary Fund. It exercises control over payments for and receipts from international trade and other kinds of foreign exchange transactions in the national interest.

The Reserve Bank of India grants financial accommodation to the co-operative banking sector (besides the scheduled banks) for financing agricultural operations and marketing. It set up the Agricultural Credit Department for this purpose.

The nationalisation of 14 major Indian scheduled commercial banks on July 19, 1969 was an important landmark in the history of Indian Banking. The immediate task set for the nationalised banks was mobilisation of deposits on a massive scale and lending of funds for all productive activities, particularly to the weaker sectors of the economy. On April 15, 1980, six more private sector banks were nationalised, extending further the area of public control over the country's banking system. As a result of nationalisation, the Bank has been successful in attaining the goals of promotion of monetisation and monetary integration of the economy, filling in the gaps in financial infrastructure, meeting the credit needs of the economy subject to the requirements of sectoral allocation, and above all in rendering support to the planning authority in productive deployment of investible funds so as to maximise growth with stability and social justice.

Organisation : The general superintendence and direction of the Bank's affairs is vested in the Central Board of Directors with headquarters at Bombay. As the Chairman of the Central Board of Directors, the Governor is the Bank's chief executive authority who is assisted by the Deputy Governor. There are four Local Boards with headquarters in Bombay, Calcutta, Madras and New Delhi.

The primary functions of the Bank regarding note issue and general banking business are exercised through two separate departments, *viz.*, the Issue and the Banking Departments. These departments constitute, what are known as the ' Local ' offices* branches of the Bank, and in Bombay they are located in the Fort area and Byculla, respectively, besides at many other places in India. Formulation of policies concerning monetary management, supervision of banks, extension of banking credit facilities, exchange control, management of foreign exchange reserves and rendering of advice to Government on economic and financial matters are mainly done at the headquarters (central office) of the Bank in Bombay. The headquarters of the Department of non-banking companies is located in Calcutta.

The Central Office has many departments which are mentioned below :—

1. Secretary's Department.
2. Department of Banking Operations and Development.
3. Industrial Credit Department.
4. Agricultural Credit Department.[1]
5. Rural Planning and Credit Cell.
6. Rural Planning and Credit Department.[2]
7. Exchange Control Department.
8. Department of Currency Management.
9. Department of Expenditure and Budgetory Control.
10. Department of Government and Bank Accounts.
11. Department of Non-Banking Companies (Regional Office).
12. Department of Economic Analysis and Policy.

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* In the Reserve Bank of India Act, a distinction is made between the terms ' office ' and ' branch ' of the Bank. The Local Boards in Bombay, Calcutta, Madras and New Delhi are designated as offices, while those in the other centres are termed as branches.

[1] These departments were closed as the bulk of their functions were taken over by the National Bank for Agricultural and Rural Development from July 12, 1982.

[2] It was created on July 12, 1982 to perform certain functions relating to rural credit.

13. Department of Statistical Analysis and Computer Services.
14. Credit Planning Cell.
15. Department of Administration.
16. Personnel Policy Department.
17. Management Services Department.
18. Legal Department.
19. Inspection Department.
20. Premises Department.

URBAN CO-OPERATIVE BANKS

An urban co-operative bank supplies short-term and medium-term credit to its members. The area of operation of such a bank is restricted to a district or a town or a part of the town, or even a factory or a department. Membership is open to all persons residing within the area of operation and the liability of members is limited. However, only with the prior permission of either the Registrar or Assistant Registrar of Co-operative Societies, a person can become a member of more than one bank. Capital is raised by issuing shares, accepting deposits on current, savings and fixed deposit accounts and by borrowing from the central financing agency.

The loans advanced by the bank are on personal security, on mortgage of property or on security of valuables pledged or produce hypothecated. Cash credits are allowed and overdrafts are sanctioned on any of the securities. It carries banking operations like issue of *hundis* and drafts and collection of cheques, *hundis*, drafts, etc.

The year 1906 recorded the registration of first co-operative Bank in Bombay *viz.*, the Shamrao Vithal Co-operative Bank. The Bank was mainly established to help the people by way of credit to the needy members of Saraswat community. During 1970-71, there were 69 co-operative banks in Bombay. The number increased to 83 during 1975-76.

The urban co-operative banks are of two categories. *viz.*, (i) Primary Urban Co-operative Banks, and (ii) Salary Earners' Co-operative Banks. There were 75 primary urban co-operative banks in Greater Bombay on 31st December 1977; of which 4 were under liquidation. Besides, there were eleven salary earners' co-operative banks in Greater Bombay. These banks catered to the credit required by their members for consumption purposes.

The following statement shows the number of primary urban co-operative banks* in Greater Bombay along with their different types of deposits as on 31st December 1977 :—

(Rs. in thousands)

No. of primary urban co-operative banks	Total no. of branches excluding their Head offices	Deposits				
		Total	Current	Savings	Fixed	Others
71	97	10,75,179	1,39,641	4,31,669	4,48,421	55,448

The classification of loans and advances by the primary urban co-operative banks reveals that the loans and advances are given for various purposes such as :—

(*i*) small scale industries ;
(*ii*) small traders, small shopkeepers and small businessmen for trade and commerce ;
(*iii*) transport operators ;
(*iv*) education ;
(*v*) construction and/or repairs to house property, dwelling houses etc ;
(*vi*) repayment prior to debt ;
(*vii*) consumption purposes ; and
(*viii*) others.

The rate of interest charged by every co-operative bank varies according to the purpose and also according to the term of repayment *i.e.*, short-term and medium-term.

The following statement reveals the number of salary earners' co-operative banks in Greater Bombay alongwith their branches and deposit mobilisation :—

(Rs. in thousands)

No. of salary earners' co-operative banks	Deposits as on 31st December 1977				
	Total	Savings	Current	Fixed	Others
17	1,58,298	48,668	2,218	1,01,360	6,052

FOREIGN EXCHANGE BANKS

Historical Background : The foreign exchange bank is defined as the bank whose head office is outside India. Though there is no rigid differentiation between foreign exchange banks and other Indian Commercial Banks, the basic point of distinction is that they invest

* Registrar of Co-operative Societies, Bombay.

a considerable portion of their funds during the busy season in discounting foreign trade bills. The financing of foreign trade in India is largely handled by them.

Most of these exchange banks were established during the latter part of the 19th century and the earlier part of the present century. The extension of the external trade and absence of a well-developed modern banking structure were responsible for the expansion of the foreign exchange banks. A list of foreign exchange banks which had established their branches in Bombay upto 1925 is given below :—

Name of bank	Head office	Year of establishment of Agency or branch of the Bank in Bombay
(1) Yokohama Specie Bank Ltd. ..	Yokohama	1894
(2) Netherlands India Commercial Bank.	Holland	1920
(3) Hong Kong and Shanghai Banking Corporation* ..	Hong Kong	1869
(4) Chartered Bank of India, Australia and China. ..	London	1858
(5) National Bank of India Ltd.	London	1863
(6) Mercantile Bank of India Ltd.	London	1854
(7) Bank of Taiwan ..	Taipeh (Formosa)	1917
(8) Sumitono Bank ..	Japan	1916
(9) Mitsui Bank	Tokyo	1924
(10) The International Banking Corporation (absorbed by the National City Bank of New York). ..	New York	1904
(11) Netherland Trading Society	Holland	1920
(12) National Vetrumariuo ..	Lisbon	N.A.
(13) The Eastern Bank of India ..	London	1910

Foreign firms such as Thomas Cooks and Sons and Grindlays and Company also conducted a substantial amount of foreign exchange business though they were mainly trading and tourist agencies.

The number of foreign exchange banks in 1870 was only three and by 1919-21 they were 19. They had a lucrative business in India by that time, both in relation to the financing of foreign trade as well as internal activities. They financed the foreign trade by issuing and purchasing the trade bills

* The business of Hong Kong and Shanghai Banking Corporation was transferred to the Mercantile Bank Ltd., on 1st October 1972.

known as D. P. (documents on payment) and D. A. (documents on acceptance) bills. As the exchange rates between the Rupee and the Sterling fluctuated from time to time, there was risk involved in this business. But the exchange banks by the first quarter of the present century had established their position and prestige; and due to the large volume of their business, were able to withstand the risks. Of course, the forward exchange market provided the necessary support.

There were a number of criticisms levelled against these foreign banks which were visible in the evidence of the Indian members before the Babington Smith Committee and in the minority report of the Hilton Young Commission. The issuing of council bills and reverse council bills by the Government of India for supporting the exchange value of the Rupee was considered to provide a special help to the exchange banks. Even Sir Stanchy Reed stated before the Hilton Young Commission, " I hold the view rightly or wrongly that this practice of spoon-feeding the exchange banks has been demoralising to the exchange banks ". The exchange banks, further invested their funds largely on the London money market and this deprived the Indian money market of the opportunity to develop further. They always protested against the proposal of allowing the presidency banks to participate in foreign exchange business or gain access to the London money market. They were against even the starting of the central bank for the development of the Indian money market. These points of complaint were less relevant by 1939, when already the Reserve Bank of India was established and the rate of exchange between the Rupee and the Sterling was fixed at the level of Rs. 1 = 1 *s.* 6 *d.*

Yet the Indian banks and Indian interests continued their criticism against the foreign exchange banks. The main two points were, firstly, the monopolistic position of these banks, and secondly, the discriminatory policies adopted by them. The Indian commercial banks, with their limited skill and resources were not able to compete with the powerful foreign banks and thus could not participate in financing of the foreign trade. The foreign banks also discriminated against Indian interests. They employed for the high position mostly their own nationals. They favoured their own shipping and insurance firms. Even the exports and imports of the country were largely carried out by the foreign firms, mainly British.

While the foreign exchange banks substantially helped the expansion of the foreign trade and bore the risk of fluctuating exchange rates; they were also able to earn good profits in their business in India. There were no restrictions or regulation or these banks till 1949, though the Indian commercial banks were regulated by the Indian Companies Act. There was always the demand from Indian banks for the control of foreign banks but no such legislation was enacted till after Independence.

The Second World War (1939-45) led to the imposition of foreign exchange controls by the Reserve Bank of India. Under the controls, exchange transactions could only be carried out by the authorised agents approved by the Reserve Bank of India and it acquired the powers of asking for information from the exchange banks about their transactions relating to India and the other countries with which the Indian branches of the exchange banks had their dealings. The rates of exchange between the Rupee and these currencies were fixed by Reserve Bank of India and the policies regarding these transactions were laid down by the Reserve Bank of India. The Reserve Bank of India acquired the surplus exchange resources arising from the export surplus of the country during the war period and a part of this was used for the repatriation of the foreign debt of the country. As a result of all these developments during the war period, Reserve Bank of India and the exchange banks came in contact with one another and a co-operative attitude developed between them. The Reserve Bank of India acquired more powers under the Indian Banking Companies Act of 1949, and under the Act, certain regulations were imposed on the functioning of the exchange banks.

Reserve Bank of India has the powers to impose strict regulations on the exchange banks if necessary and thus the foreign exchange banks are on par with the other Indian banks in the country.

Since Independence, the Indian banks have been extending their activities and have opened branches in various countries. By 1960, there were as many as 100 offices of Indian banks in foreign countries, though majority of them were in Pakistan. The main obstacle in the way of Indian banks taking up banking business in foreign countries has been the difficulty of opening branches and working them successfully. There are political and currency complications. A branch in a foreign country needs huge capital, great experience and prestige to attract funds. Yet the Indian banks are venturing abroad in various countries. Still they have not got a sufficient share in the financing of foreign trade, and the foreign exchange banks have the major share, in financing the foreign trade of the country.

With the changing structure and functions of the Indian commercial banks and the economic development of the country, certain trends are evident in the working of the foreign exchange banks. Their share in the financing of internal trade is very insignificant today. This can be accounted for by two factors. The volume of imports and exports of the country has increased at a very rapid rate, and though the Indian commercial banks are slowly extending their share in this field, the volume of business of exchange banks is large and increasing. The rates of exchange are now maintained at a fixed level and can be changed by the Government only after the approval of the International Monetary Fund. Thus the

risks in financing of external trade are very low and the profits of the exchange banks are high. The tourist trade is expanding which again expands the transactions of the exchange banks.

Since 1950, and more so after 1956, a large number of collaboration agreements have been undertaken in the industrial sector, between the Indian and the foreign firms. These collaborating firms, would naturally bank with the banks of their own nation and thus have their accounts with these banks. They would also draw credit from these exchange banks and thus the business of the foreign exchange banks continued to expand. The credit controls are not all directly applicable to the foreign exchange banks, and as these banks are mostly concerned with those sectors which are accepted as the priority ones by the plans, the financial activities of the exchange banks have continued to expand. Their functioning is largely confined to, these definite sectors, and as with the other financial institutions, their business is also continually expanding.

The list of Foreign Exchange Banks functioning in Greater Bombay in 1980* is given below:—

	Foreign Exchange Bank	No. of Branch offices/ Administrative offices/ sub-offices
1.	American Express International Banking Corporation.	Local Head Office.
2.	Bank of Oman	1 branch.
3.	Bank of Tokyo	1 branch.
4.	Banque National de Paris ..	2 branches.
5.	British Bank of the Middle East ..	1 branch.
6.	Chartered Bank	1 branch, 5 sub-branches. 1 administrative office.
7.	European Asian Bank	1 branch.
8.	Mercantile Bank	1 branch, 6 sub-offices.
9.	Mitsui Bank	1 branch.
10.	Nedungadi Bank	1 branch.

Information about some foreign exchange banks operating and having branches in the city of Bombay and their operations are described in the following paragraphs.

Mercantile Bank Limited† (*Incorporated in England*) : The Mercantile Bank Ltd. is one of the oldest British banks to have been established in the city of Bombay. It's first branch was established as early as in 1853 in the Fort area. It was mainly undertaking banking and exchange business of

* *Directory of Bank Offices*, December 1980, Reserve Bank of India.

† The name of the bank has been changed to Hong Kong and Shanghai Banking Corporation Since 1st January 1983.

every description. Since then upto 1966, no new additional branch was opened, mainly for undertaking ordinary banking business. There were six branches of the bank in Greater Bombay in 1970 five of them being established since 1966. They were established as follows:—

(1) the branch at Tulsi Wadi, 1st March 1966, (2) the branch at Vile Parle (West), 14th October 1966, (3) the branch at Chembur, 15th March 1967, (4) the branch at Bandra, 28th August 1968, and (5) the branch at Andheri (East), 28th January 1969. As the separate information about the assets and liabilities of these branches in the city of Bombay is not available, an aggregate data of all the Indian branches of the bank is given.

The total liabilities and assets of the bank from 1967 to 1970 are given below :—

(Rs. in lakhs)

Year	Liabilities and Assets	Year	Liabilities and Assets
1967 ..	43,29	1969 ..	53,18
1968 ..	55,23	1970 ..	60,09

The entire business of the Hong Kong and Shanghai Banking Corporation in India was transferred to the Mercantile Bank Ltd. on 1st October 1972.

American Express International Banking Corporation : The date of establishment of the branch in Bombay is June 1, 1922. The nature of transactions as reported by the bank is ordinary banking business, discounting of foreign and indigenous bills, etc.

National and Grindlays Bank Limited : The first branch of the bank was established in Bombay in 1865 and upto the year 1972, the number of branches in Greater Bombay increased to 11.

Under the advances of the bank, Rs. 2,95 lakhs and Rs. 8 lakhs relate to the medium-term advances for which finance has been obtained, respectively from Industrial Development Bank of India and Agricultural Refinance Corporation.

(Rs. in lakhs)

Year	Liabilities and assets (As on 31st December)	Year	Liabilities and assets (As on 31st December)
1966 ..	2,43,55	1969 ..	2,79,27
1967 ..	2,54,55	1970 ..	3,55,59
1968 ..	2,71,31		

The data given in the following statement indicate the pattern of the advances by the Bombay branches of the Bank.

(Rs. in '000)

Sector	1967		1969	
	No.of Accounts	Amount Rs.	No. of Accounts	Amount Rs.
Industry	225	22,35,58	267	27,57,20
Commerce	393	12,59,58	485	1,64,600
Agriculture	4	1,75	2	4,39
Personal and professional ..	463	22,03	509	17,48
All others	135	2,17,74	143	1,97,74
Total ..	12,20	37,36,68	14,06	46,22,81

The bank's advances in Greater Bombay as above reflect not merely the policy of the Bank in relation to these advances but also the industrialised nature of the city. By 1969, as regards the number of accounts, the largest was under personal and professional *viz*; 509, but the amount of advances to industry was the highest which stood at Rs. 27.57 crores (accounts 267) in 1969; and to commerce at Rs. 16.46 crores (accounts 485). The advances to personal and professional sector were hardly Rs. 17 lakhs. As agriculture plays a very small role in the city, the number of accounts were only two and the advances under it amounted to about Rs. 4 lakhs. The commerce and industry which form the basic sectors in the city, account for the major part of the advances of the bank. The data reflect the fact that the largest amount of transactions were in terms of Sterling and U.S. Dollar. In 1971, the purchase and sale of Sterling were Rs. 102 lakhs and Rs. 164 lakhs, respectively and purchase and sale of U.S. Dollar were Rs. 110 lakhs and Rs. 58 lakhs, respectively. The transactions in other currencies *viz.* Canadian or Australian were relatively very small. The amount of deposits of the branches in Greater Bombay increased from Rs. 43,40 lakhs in 1967 to Rs. 61,45 lakhs in 1971 and the number of deposit accounts increased from 80,144 to 1,04,763 over the same period. Similarly, their business in relation to advances of loans to indigenous and foreign trade continually expanded over this period.

The largest number of accounts and the amount thereunder in the branches of the bank in Greater Bombay are under personal accounts. Out of 95,524 total number of accounts in March 1970, the total number of personal accounts stood at 87,910; whereas, the number of accounts in trading concerns stood at 3,965; and manufacturing, at 799. The amount outstanding on 31st March 1970 on personal account was Rs. 27,31 lakhs;

while under manufacturing it was Rs. 4,78 lakhs. A large amount of personal deposits were in the fixed deposits and the savings accounts; while for the manufacturing and trading concerns, they were largely in savings and current accounts.

The first branch of the bank was established in the Fort area in 1865. Upto December 1975, the number of branches of the bank increased to 11. They are situated at Mandvi, Cumballa hill, Dadar, Byculla, Ghatkopar, Santacruz, Vile Parle, etc. These branches carry out all types of banking business, while the branches at Cumballa Hill, Dadar, Santacruz and Vile Parle, provide safe deposit locker facilities.

Mitsui Bank Limited (*Incorporated in Japan with Limited Liability*) : The bank has one branch office in India which was established on 28th May 1955 in Bombay. The bank is a scheduled ' A ' class bank doing ordinary banking business such as deposits, foreign exchange, loans, etc. The following statement gives the profit and loss account of Bombay branch for the year ended 31st December.

Year	Expenditure	Income
	(Rs.)	(Rs.)
1967 ..	.. 28,99,528.95	28,99,528.95
1968 ..	.. 26,34,097.33	26,34,097.33
1969 ..	.. 23,27,163.12	23,27,163.12
1970 ..	.. 23,78,371.50	23,78,371.50

First National City Bank : (Incorporated with limited liability in the U.S.A. and established in 1812).—The First National City Bank has three branches in the city of Bombay. The first branch was established in January 1904. The bank is mainly concerned with banking business and foreign exchange business. It's rate of interest for loans varies from 9 to 10½ per cent. The prime consideration in sanctioning loans is the credit worthiness of the client and the viability of the project. The statement given below about the ownership of deposits as on 31st July 1970 indicates that the number of personal accounts of the bank were the largest as the same stood at 12,052 on July 31, 1970. The next in importance in the number of accounts were business accounts and trading companies. The deposits of manufacturing concerns were higher in relation to other deposits.

(Rs. in thousands)

Particulars	Fixed Deposits		Current Accounts		Saving Deposits		Total Deposits	
	No. of accounts	Amount	No. of accounts	Amount	No. of accounts	Amount	No. of accounts	Amount
		Rs.		Rs.		Rs.		Rs.
Manufacturing concerns.	47	41,992.18	325	37,309.29	....	....	372	79,301.47
Trading companies	31	948.36	463	9,473.35	....	....	494	10,421.71
Personal ..	1,233	9,319.69	449	2,418.20	10,380	20,255.53	12,062	31,993.42
Banking companies	....	....	13	1,115.49	....	....	13	1,115.49
Business ..	19	18,735.78	77	10,813.35	....	....	96	29,549.13
Public institutions and trusts.	38	4,084.79	37	4,187.64	28	293.93	103	8,566.36
Others ..	48	2,40,378.17	28	1,083.92	....	....	76	2,41,462.90
Total ..	1,416	3,15,458.97	1,392	66,401.24	10,408	20,549.46	13,216	4,02,409.67

As regards the advances of the Bank, the largest amount was to industry, accounting for Rs. 207,594.23 thousands by August 7, 1970. The total advances on that date were Rs. 217,478.95 thousands and the number of total accounts stood at 764.

The data on advances according to securities in Greater Bombay indicates that all the advances were on the security of industrial raw materials and the same amounted to Rs. 154,294.60 thousands. The business of the Bank which was confined to the city of Bombay reflected two features. Firstly, a large number of accounts and transactions were in the category of personal transactions and they could be mostly in relation to the American citizens residing in the city. Secondly, the amount of advances to industries by Bombay branches was the highest on 7th August 1970 and that again could be in relation to the American industrial and business firms in the city, and their operations in the country.

STATE-AID TO INDUSTRIES

The main object of industrial policy is to bring about a balanced and a rapid development of the country's industrial resources. This cannot be achieved if things are left entirely in the hands of private enterprises, because the paucity of capital, the shortage of industrial and capital

goods, the lack of technical skill and the desire to have quick and sure returns are the obstacles in the way of private entrepreneurs. The State therefore has got an important role to play on this behalf. Financial assistance for creation of fixed assets and working capital is one of the important factors for the promotion of industries. The same is made available through the following institutions :—

Source	Financial Assistance
(1) Directorate of Industries under the State-Aid to Industries Act, 1960.	Working capital and fixed assets.
(2) Maharashtra State Financial Corporation.	Working capital and fixed assets.
(3) State Bank of India, Commercial banks under the Reserve Bank of India guarantee scheme.	Working capital.
(4) State Industrial and Investment Corporation of Maharashtra (SICOM).	Share capital participation.
(5) Maharashtra Small Scale Industries Development Corporation Ltd., (MSSIDC).	Share capital participation.

Besides, large scale industrial units get financial assistance from the Industrial Development Bank and the Industrial Credit and Investment Corporation of India. The Directorate of Industries, however, is not associated with any of the formalities for financing large scale industrial units through these two organisations. The Directorate of Industries renders financial assistance under the State-Aid to Industries Act, 1960 and furnishes technical scrutiny report in the case of applications considered by the Maharashtra State Financial Corporation and the State Bank of India. The Directorate of Industries is indirectly associated with processing of applications of medium scale industries sponsored by the State Industrial and Investment Corporation of Maharashtra and small scale industries sponsored by the Maharashtra Small Scale Industries Development Corporation.

The rate of interest charged differs so as to give special treatment to small entrepreneurs and to those from the underdeveloped regions. This is one of the incentives offered by the State Government for dispersal of industrial growth and preventing over-concentration of industries in the Bombay-Thane industrial complex. The Deputy Director of Industries, Bombay region, operates the scheme for financing small and cottage industries in Greater Bombay and grants loans upto Rs. 3,000. The details of loans granted under State-aid to Industries Rules, 1961, to the cottage and

small scale industries in Greater Bombay area by different agencies are given in the following statement :—

Name of agency	1967-68		1968-69		1969-70		1970-71	
	Units	Amount (Rs.)	Units	Amount (Rs.)	Units	Amount (Rs.)	Units	Amount (Rs.)
Maharashtra State Financial Corporation.	14	6,62,000	9	4,81,000	14	5,63,000	..	7,63,657
Bank of Maharashtra	1	8,000	11	72,400	9	72,200	15	85,000
The Deputy Director of Industries, Bombay.	20	28,300	26	35,750	14	20,000	15	24,000

The two important schemes implemented by the Directorate of Industries, Government of Maharashtra, Bombay, in the last few years are (*i*) Employment Promotion Programme, and (*ii*) Export Promotion, the details of which are given in the following few paras.

(i) Employment Promotion Programme : Under this programme, the scheme of seed money assistance to educated unemployed is implemented. During 1973-74, the Government of India launched a programme to assist the educated unemployed young men to be self-employed in small industries, service industries or business enterprises. The scheme is implemented by the Industries Commissioner through different development corporations within their jurisdiction. The main objective of the scheme is to encourage new types of small ventures including trading activities for full utilisation of locally available raw material, indigenously developed know-how, local skills and talents. However, as the class of entrepreneurs is being initiated for the first time to venture into small industrial or business enterprise, it may not be always possible to provide margin money for a bankable proposal. Usually, the financing institutions stipulate upto 30 per cent of the total cost of the project, including working capital finance. The scheme for seed money assistance envisages filling up the gap of margin money to the extent of 10 per cent of the project cost and in very exceptional cases upto 15 per cent at a low rate of interest of 4 per cent per annum and a long moratorium for repayment.

Entrepreneurs are expected to seek financial assistance from the institutional sources, *i.e.*, the nationalised banks, Maharashtra State Financial Corporation, etc. The main feature of the scheme apart from seed money assistance is to provide co-ordinated assistance by regional development corporations right from the stage of selection of the business or production opportunity upto the point the project goes into operations.

Assistance of seed money is available to proprietary units, partnership concerns, private limited companies or co-operative housing societies, with majority share holding by eligible persons without any further

dilution of holding by those who do not belong to this category. In the case of manufacturing units, dilution of equity is permitted only if the educated unemployed are in majority. The equity held by them should at least be 76 per cent of the total equity, for getting an assistance of seed money. In such case, the seed money is sanctioned upto Rs. 30,000. Besides, all the educated unemployed partners are expected to take active part in the enterprise. Assistance of seed money is given only at the start of the project both for fixed and working capital as evaluated by the financing agency.

The repayment of loan given as seed money for fixed assets commences only after the entrepreneur's obligation has been fully met or after eight years, whichever is earlier. The repayment is generally spread over a period of four years after the period of moratorium. The first instalment commences six months after the expiry of moratorium comprising of the accumulated interest followed by equated six-monthly instalments of principal with interest. In Greater Bombay area, the scheme is implemented by the Industries Commissioner, Bombay, through the Maharashtra Small Scale Industries Development Corporation and the Khadi and Village Industries Board.

The assistance for self-employment is given for the following activities :—

(*a*) Small industries and services institutes,

(*b*) Agro-service centres,

(*c*) Animal husbandry, dairy, poultry, piggery, fisheries, etc.

(*d*) Retail shops for sales and services, especially those relating to goods coming under the public distribution system, organisation of co-operatives for marketing goods, agencies and services of hotels and motels, etc.

(*e*) Transport, and

(*f*) Medical practitioners at places with a population not exceeding 50,000.

The expenditure on this scheme in Greater Bombay since its inception was as under:—

Year	Units	Amount in lakhs (Rs.)
1972-73	5	0·13
1973-74	48	3·02
1974-75	29	3·08
1975-76	266	8·17
1976-77	108	3·00
Total ..	456	17·40

(ii) Export Promotion Activities : An export promotion wing headed by the Director of Export Promotion, who is also the Member-secretary of the State Board for Export Promotion, has been constituted within the Directorate of Industries, to act as the secretariat cell of the Board, standing committee, and the seven commodity panels under the Board for export promotion and to perform all other executive functions relating to export promotion.

The Export Promotion Cell in the Directorate of Industries recommends deserving cases for preferential treatment to various organisations in the matter of procuring of land, water, power, raw materials, machinery, etc. It also makes arrangements to disseminate information to interested exporters and helps them in the display of their products in the selected international trade fairs and exhibitions. It also assigns to reputed concerns or organisations the work of conducting export potential surveys of selected products and commodities. Of late, in view of the tremendous potential, efforts are concentrated in the countries in the Middle East.

The export promotion wing in the Directorate makes special efforts to assist the exporters by taking up their genuine difficulties both with the State Government as also with the Central Government. This pertains to items like custom duty problems, refund of excise duty, exemption from payment of octroi duties, etc.

Recommendations of the panels are screened by the committee of the Chairmen of the panels presided over by the Secretary of Industries, Energy and Labour Department, Government of Maharashtra, and important recommendations involving general issues and policies are placed before the Board for consideration. Actions or other recommendations of the panels, relatively less in importance and of an individual nature are initiated by the Export Promotion wing without reference to the Board.

Important recommendations of the Board involving major policy decisions on the part of the State Government are placed before the Industries sub-committee of the High Power Committee of the State Cabinet.

Besides the export promotional activities of the Directorate of Industries, the following State Government agencies in Bombay, are engaged in commercial exports of products coming under their respective purview:—

Agency	Products
MAFCO Limited	Frozen buffalo meat, fresh and frozen vegetables, bananas, mangoes, peas and fish.
Maharashtra Agro-Industries Development Corporation Limited.	Canned and bottled fruit juice, pulp and squashes.

Agency	Products
Maharashtra Small Scale Industries Development Corporation Limited.	All items of small scale industries.
Maharashtra State Oil Seeds Commercial and Industrial Corporation Limited.	Cotton seed, cakes and extraction.
Maharashtra Fisheries Development Corporation Limited.	Frozen sea food, prawns and lobster tails in cans and frozen fish.
Maharashtra State Powerloom Corporation Limited.	Powerloom cloth.
Maharashtra State Textile Corporation Limited.	Cotton textiles.
Maharashtra State Co-operative Marketing Federation Limited.	Cotton bales.
Development Corporation of Konkan Limited.	Mangoes.

A sum of Rs. 5 lakhs was placed at the disposal of the Maharashtra Small Scale Industries Development Corporation Limited as agency of the State Government for solving the difficulties of warehousing faced by upcountry exporters. The Corporation has already constructed a warehouse at Sewri wherein an area of 929 square metres is earmarked for exporters. In addition, another warehouse in Cotton Green area admeasuring 6,967.72 sq. metres has been acquired by the Corporation from Bombay Port Trust and the warehouse would be available to exporters for storage and repacking. These facilities are proposed to be expanded in a phased programme depending on the demand and availability of funds.

As a measure of encouragement, the Government of Maharashtra annually distributes awards in the form of silver plaques to the best exporters. The scheme covers large scale, small scale entrepreneurs and merchants in the State.

STATE-SPONSORED FINANCIAL INSTITUTIONS

Maharashtra State Financial Corporation : Various State Financial Corporations have been established in pursuance of the State Financial Corporations Act, 1951 for catering to the financial requirements of small and medium sized industries. The Maharashtra State Financial Corporation (MSFC) was established in 1953 as the then Bombay State Financial Corporation and was reconstituted under Section 70 of the Bombay Re-organisation Act, 1960. Accordingly, its name was changed to Maharashtra State Financial Corporation.

The Corporation considers applications for loans of Rs. 10,000 to Rs. 10,00,000 from proprietary concerns, partnership concerns without minors and private limited companies. However, in the case of public limited companies and registered co-operative societies, the Corporation is empowered to consider applications upto Rs. 20 lakhs.

In order to assist particularly the small scale industries, the Maharashtra State Government has entered into an agency-*cum*-guarantee agreement with the Corporation under which loans from Rs. 10,000 to Rs. 75,000 and in exceptional cases upto Rs. 1 lakh are granted by the Corporation on liberalised terms. The Government also gives guarantee in each of these loans. Loans above Rs. 1 lakh are considered by the Corporation under its own rules.

A list of industrywise loan applications sanctioned by the Corporation during 1979-80 in Greater Bombay district is given below:—

Serial No.	Type of Industry	Applications sanctioned	
		No.	Amount (Rs. in lakhs)
1.	Mining and quarrying	....	....
2.	Food mfg. industry except beverages ..	1	29.30
3.	Mfg. of Textiles	15	57.91
4.	Mfg. of footwear and other wearing apparels and made up textile goods	2	2.34
5.	Mfg. of wood and cork except mfg. of furniture	2	0.86
6.	Mfg. of furniture and fixtures	....	....
7.	Mfg. of paper and paper products ..	3	3.33
8.	Printing, publishing and allied industries ..	13	35.04
9.	Mfg. of leather and leather products ..	2	5.88
10.	Mfg. of rubber products	1	3.18
11.	Mfg. of chemicals and chemical products ..	9	25.67
12.	Mfg. of products of petroleum and coal ..	1	20.00
13.	Mfg. of non-metallic mineral products ..	1	5.50
14.	Basic metal industries	3	26.37
15.	Mfg. of metal products except machinery and transport equipment	20	53.70
16.	Mfg. of machinery except electrical machinery	7	26.32
17.	Mfg. of electrical machinery, apparatus and appliances	5	17.97
18.	Mfg. of transport equipment	....	....
19.	Miscellaneous mfg. industries	16	70.35

Note : Mfg. = Manufacturing

Serial No.	Type of Industry	Applications sanctioned	
		No.	Amount (Rs. in lakhs)
20.	Electricity, gas, steam and sanitary services	....	....
21.	Hotel industry	6	31.45
22.	Transport industry—		
	(*a*) Road transport	13	5.90
	(*b*) Water transport	2	0.64
23.	Beverages industry	....	....
24.	Industrial estates	....	....
25.	Motion picture and distribution ..	....	....
	Total ..	122	4,21.71

Total number of cases sanctioned by the Corporation in Greater Bombay District are given in the following statement:—

Year	Number	Amount (Rs. in lakhs)
1964–65	126	1,95.45
1965–66	63	1,06.27
1966–67	66	1,64.87
1967–68	37	1,18.34
1968–69	59	1,37.92
1969–70	120	2,09.26
1970–71	142	1,95.65
1971–72	131	2,47.68
1979–80	122	4,21.71

During 1979–80, the actual amount disbursed by the Corporation amounted to Rs. 2,72.36 lakhs.

Industrial Development Bank of India : The Industrial Development Bank of India (IDBI) was set up with its headquarters in Bombay in July 1964 as a wholly owned subsidiary of the Reserve Bank of India in terms of the Industrial Development Bank of India Act, 1964, for providing credit and other facilities for the development of industry and

for matters connected therewith The various activities of the Bank include (i) direct assistance to industry in the form of loans, underwriting of shares and debentures, guarantee for loans and deferred payments ; (ii) refinance of industrial term loans granted by Commercial and State Co-operative Banks, State Financial Corporations and other term financing institutions ; (iii) rediscounting of usance bills, promissory notes arising out of sales of indigenous machinery ; (iv) refinance of export credits and direct loans and guarantees in participation with commercial banks in respect of exports; (v) subscription of the shares and bonds of State Financial Corporations and other term financing institutions; (vi) promotional activities such as marketing and investment research and techno-economic studies; and (vii) co-ordinating the activities of other term-financing institutions.

Thus the Bank has been designed and empowered to function, not merely as a financing institution, but a central co-ordinating agency, which ultimately is concerned directly or indirectly with all problems relating to the long and medium term financing industrial growth.

The minimum amount of loan that is normally refinanced is Rs. 2 lakhs which is relaxed in the case of projects already assisted under the scheme; in the case of loans to small scale industries guaranteed under the Central Government's Credit Guarantee Scheme and to small road transport operators, the minimum limit has been fixed at Rs. 10,000 and Rs. 20,000, respectively.

The minimum period of loans so to be eligible for refinance is of 3 years. The maximum period in respect of loans given by Commercial and State Co-operative Banks is upto 10 years and upto 25 years in the case of term-lending institutions.

It normally refinances upto 80 per cent of the eligible loans. But in the case of loans to small scale units covered under the Credit Guarantee Scheme, loans upto Rs. 20 lakhs to small and medium sized projects, in specified backward areas and loans upto Rs. 5 lakhs in other cases, refinance is provided upto 100 per cent.

The normal rates of interest for refinance of industrial loans are 6.75 per cent and 7.00 per cent where the ceilings on the rates to be charged by the financial institutions are 10.25 per cent and 10.50 per cent, respectively. In the case of refinance of loans to small scale units, which are covered under the Credit Guarantee Scheme, a concessional rate of 5 per cent is charged, provided the lending institution itself charges not more than 8.50 per cent per annum. Recently, the rate has been reduced to 3½ per cent in respect of loans upto Rs. 20 lakhs granted to small and medium sized projects in specified backward areas, provided the primary lender does not charge an effective rate exceeding 7 per cent.

The following statement reveals the statistical information of financial assistance sanctioned and disbursed by the bank to industrial units located in Greater Bombay since its inception upto 30th June 1973 :—

(Rs. in lakhs)

Particulars	Loans		Underwriting		Loans for export		Guarantee for export	
	No. of Units	Amount (Rs.)	No. of Units	Amount (Rs.)	No. of Units	Amount (Rs.)	No. of Units	Amount (Rs.)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Assistance sanctioned	8	7,22·80	6	2,53·78	8	17,14·12	1	1,80·14
Assistance disbursed	3	2,07·80	5	46·33	7	8,85·18	1	1,79·19

During the period 1979-80 the Bank sanctioned a loan amounting to Rs. 26,14·47 lakhs to 20 industrial units located in Greater Bombay. The schemewise loans distributed during 1979-80 were as under :—

Scheme	No. of units	Amount sanctioned (Rs. in lakhs)
Soft loans	10	2,181
Technical development	8	3,25·60
Project loans	1	1,05
Underwriting debentures ..	1	2·87

Industrial Credit and Investment Corporation of India Ltd. : The Corporation (ICICI) is a financial institution which was established on 5th January 1955, to encourage and assist industrial investment in the country.

In pursuit of its objective of promoting private industrial investment, the Corporation grants financial assistance for various purposes including purchase of capital assets in the form of land, buildings, machinery, etc. It underwrites public and private issues and offers sale of industrial securities, ordinary shares, preference shares, debentures and debenture stock. The Corporation makes direct subscriptions to such securities. The Corporation makes similar loans in foreign currencies for payment of imported capital equipment and technical services. It also guarantees payments for credits made by others.

Since its inception upto December 31st 1972, the Corporation sanctioned assistance amounting to Rs. 62,49·30 lakhs to 144 companies in Greater Bombay for their 230 projects.

Industrial Finance Corporation of India : The Corporation was established in 1948 under the Act of the Indian Parliament with the object of providing medium and long term credits to industrial concerns in India, particularly in circumstances where normal banking accommodation is inappropriate or recourse to capital issue methods is impracticable.

Fifty per cent of the paid-up capital now standing at Rs. 10 crores is held by the Industrial Development Bank of India, which is a wholly owned subsidiary of the Reserve Bank of India. The remaining 50 per cent is held by the scheduled banks, co-operative banks, insurance concerns and investment trusts, etc.

The main sources of funds of the Corporation other than its own capital include repayment of loans, borrowings from the market by issue of bonds, loans from the Central Government, foreign credits, etc.

The following statement reveals the progress made by the Corporation in assisting the industrial growth of Bombay.

(Rs. in lakhs)

Year	No. of concerns assisted	Total cost of these projects (Rs.)	Facilities sanctioned by the corporation	Net amount sanctioned (Rs.)	Amount disbursed upto 30th September 1973 (Rs.)
(1)	(2)	(3)	(4)	(5)	(6)
1968-69	3	3,69.31	Rupee loan, foreign currency loan, underwriting of shares.	78.60	36.75
1969-70	2	11.00	Rupee loan, foreign currency.	7.58	7.57
1970-71	3	2,01.46	Rupee loan, direct subscription, foreign currency.	1,12.13	95.01
1971-72	2	10,51.00	Rupee loan, underwriting.	28.00	6.27
1972-73	4	14,63.88	Rupee loan, foreign currency, underwriting of debentures.	1,36.67	9.57

The rate of interest charged continued to be 8·5 per cent per annum on rupee loans, 9 per cent on sub-loans in foreign currencies and 7 per cent per annum subject to certain conditions on rupee loans for projects located in the less developed districts.

National Industrial Development Corporation : The Corporation, with its headquarters at New Delhi, renders consultancy engineering services by way of detailed design and erection of complete projects and preparation of detailed project reports. It is specialised in engineering industries, pulp and paper, electronics, metallurgical and ore handling projects.

The services of the Corporation are being used by the Central Government, various State Governments, public sector enterprises and private entrepreneurs in India.

Upto 1972-73, 5 companies located in Greater Bombay were assisted by the Corporation. The total loan sanctioned to these companies amounted to Rs. 2,30·36 lakhs. Of the 5 companies, which received assistance, 4 were textile mills and one engineering unit.

Maharashtra Small Scale Industries Development Corporation Limited: The Corporation was established on 19th October 1962 to promote and finance small industries. It also provides machinery, equipment, technical and managerial assistance to small scale industries. It has started a number of activities so to emerge as a multi-service agency for the small scale sector.

The Corporation started its active career in 1963 with the programme of procurement and distribution of raw materials. The raw materials supplied by the Corporation fall under three categories, *viz.* ferrous metals, non-ferrous metals and chemicals.

The scheme of supply of machinery on hire purchase basis is implemented by the Corporation since the beginning of 1964. During 1970-71, the Corporation supplied 36 machines worth Rs. 1·80 lakhs to 14 units in Bombay. The number of units as also the number of machines supplied to these units by the Corporation showed an increase during 1971-72, as the same stood at 26 and 72 respectively. The value of machinery provided to 26 units in Bombay during 1971-72 amounted to Rs. 9·07 lakhs.

The Corporation has continued to function as handling and drumming agents for State Trading Corporation for mutton tallow received at Bombay Port.

The Corporation started its import activity in 1967-68 with a view to assist small units. After the change in the import policy of Government of India, the Corporation has started collecting release orders issued by the State Trading Corporation and other agencies.

SMALL SAVINGS

The Government of India established Savings Banks in Presidency towns as early as in 1833. Their management was transferred to the Presidency Banks in 1865 and they were extended to other towns of the country. From 1896, these Savings Banks were managed by postal department and all accounts were treated as at call as in ordinary banking. No special reserves were maintained against these deposits. This money constituted the unfounded debt and was a floating charge on the credit of the Government. The rate of interest was relatively low, at 2 per cent in 1936 and hence did not attract large deposits from the general public.

The small savings movement got an impetus during World War II, and there has been further marked progress due to the efforts and schemes made for the mobilisation of small savings since 1950.

The net collection of small savings is shared between the Central and State Governments since 1952, on an agreed formula which has undergone several changes since then. In June 1958, the formula was revised and the States were to retain their entire market borrowings and in addition receive two-third of the net collection from small savings in their respective areas.

The small savings schemes are getting popularity among the poor as well as the affluent class of society. This is due to the fact that Government have introduced various schemes to suit the requirements of individuals, groups, people with low income as well as tax-payers.

Most of the small savings schemes are worked through post-offices, and the number of branches of post offices are more in number than the branches of scheduled banks. Besides, a poor man visits the post-office very often and therefore finds it more convenient to deal with post-office than with sophisticated banks.

The schemes with income-tax concessions are mainly meant for the higher strata of society. In 1984-85, the following small savings schemes were in operation :—

(*i*) Post-Office Savings Bank Account; (*ii*) Cumulative Time Deposit Account; (*iii*) Recurring Deposit Account; (*iv*) Time Deposit Account; (*v*) National Savings Certificates and (*vi*) Public Provident Fund Account. The total target and achievement in all these schemes and accounts in Greater Bombay from 1974-75 to 1976-77 and 1984-85 are shown below :—

(Rs. in lakhs)

Year	Small Savings target	Achievement	
		Gross	Net
1974-75 ..	27,00·00	47,64·99	—(46·39)
1975-76 ..	22,00·00	64,46·87	+(10,87·17)
1976-77 ..	16,50·00	77,42·70	+(20,71·03)
1984-85 ..	N.A.	76,983·23	+(38,214·73)

Post-Office Saving Bank : The post-office savings scheme came into force by the enactment of Government Savings Bank Act,* 1873 (5 of 1873). The same was afterwards amended by Savings Banks Amendment Act, 1959. The Post-Office Savings Bank constitutes a source for the collection of small savings especially from the people with meagre earnings.

**Source.*—Post-Office Small Savings Schemes, Part I, A. N. Dureja, 1984.

This is the largest and the oldest savings institution and plays an important role in mopping up savings which are utilised for national development. As per the Post-Office Savings Bank General Rules, 1981, any person is eligible to open his account with a deposit of not less than Rs. 5 in any post-office either sub-post-office, branch post-office or head post-office functioning as a post-office savings bank.

The depositor receives interest at the rate of 5·5 per cent per annum (1984). No interest is allowed on any sum in excess of Rs. 25,000 in a single account or Rs. 50,000 in a joint account. The interest received by the depositor from the account is free from income tax. During 1958-59, the net collection in Greater Bombay under the scheme amounted to Rs. 20,000 which increased to Rs. 1,17,57,000 during 1960-61 and to Rs. 5,79,16,000 during 1965-66.

The collections under the scheme in Greater Bombay during 1975-76 and 1976-77 are given below :—

(Rs. in lakhs)

Particulars	1975-76	1976-77
(1) No. of accounts	25,670	9,77,07
(2) No. of accounts opened during the year—		
(*a*) target	55,000	80,000
(*b*) achievement	1,72,037	22,360
(3) Collection—		
(*a*) target	8,81·00	8,80·00
(*b*) achievement—		
(*i*) gross	9,97·35	11,62·26
(*ii*) net	4,18·97	95.99

The gross collection during 1984-85 was Rs. 48,76·16 lakhs, while the net collection amounted to Rs. 63·32 lakhs.

National Savings Certificates : The National Savings Certificates are issued according to Government Savings Certificates Act, 1959. At present, the Act is applicable to the 7-Year National Savings Certificates of IInd, IIIrd, IVth and Vth issues and the National Savings Annuity Certificates.

The 7-Year National Savings Certificates IInd, IIIrd and IVth issues came in force on 16th March 1970 *vide* Post-Office Savings Certificates Rules, 1960 ; whereas the certificates of Vth issue came in force in 1974.

The salient features of the 7-Year and 6-Year National Savings Certificates are shown in the Table No. 6.

TABLE No. 6

SALIENT FEATURES OF NATIONAL SAVINGS CERTIFICATES

Serial No.	Salient feature	7-Year	6-Year	
		II ISSUE	VI ISSUE	VII ISSUE
1	Date of introduction ..	16th March 1970 ..	1st May 1981	1st May 1981
2	Denominations ..	.. Rs. 10, 50, 100, 500, 1,000 and 5,000	Rs. 10, 50, 100, 500, 1,000, 5,000 and 10,000.	Rs. 100, 500, 1,000, 5,000 and 10,000
3	Period of maturity ..	7 Years ..	6 Years.	6 Years.
4	Surrender value for a Certificate of Rs. 100 Denomination at Maturity	.. Rs.155.50 ..	Rs. 201.50.	Rs. 100
5	Rate of interest ..	.. 6.5 per cent (Compound) ..	12 per cent (Compound half yearly)	12 per cent (Payable six monthly)
6	Tax concession on interest ..	.. Interest-free of Income Tax ..	Interest-free of Income tax upto Rs. 7,000 a year inclusive of interest on other specified investments. The tax is not deducted at source.	As for VI Issue.
7	Lock up period (period of non-encashability)	.. 3 Years ..	3 Years.	3 Years.

TABLE No. 6—contd.

Serial No.	Salient feature	7-year	6-year	
		II Issue	VI Issue	VII Issue
8	Limit of holdings ..	.. Rs. 75,000 for single investor (adult or minor) Rs. 1.5 lakhs for joint holders. This Limit includes all holding in the earlier issues of certificates as per details given in Rule 7.	No limit ..	No limit
9	Exchange with prize bonds ..	.. Not permitted ..	Not permitted ..	Not permitted
10	Purchase of surrender of savings Stamps	.. Allowed ..	Not allowed ..	Not allowed
11	Exchange with Gift Coupons ..	.. Allowed excepting Gift coupons of Rs. 5 which can be exchanged only for cash.	Not permitted ..	Not permitted
12	Partial discharge ..	.. Allowed after the lock-up period ..	Not permitted ..	Not permitted
13	Pledging as security ..	.. Allowed	Allowed ..	Allowed
14	Conversion from one denomination to another	.. Allowed	Allowed ..	Allowed
15	Purchase by Non-resident Indians	.. Not allowed	Allowed ..	Allowed

The 6-Year National Savings Certificates (VI and VII issues) were introduced on 1st May 1981.

The gross and net collections under the 7-Year and 6-Year National Savings Certificates[1] in Greater Bombay in 1984-85 were as follows :—

(Rs. in lakhs)

Particulars	1984-85
(A) 7-Year National Savings Certificates :—	
(1) IInd Issue—	
(*a*) gross	164.55
(*b*) net	—83.69
(B) 6-Year National Savings Certificates :—	
(1) VIth Issue—	
(*a*) gross	23,426.94
(*b*) net	23,334.64
(2) VIIth Issue—	
(*a*) gross	4,327.22
(*b*) net	4,231.74

Post-Office Time Deposits : The scheme came into force from 16th March 1970 *vide* Post-Office (Time Deposit) Rules, 1970. It is governed by the Post-Office Savings Bank Rules, 1965.

The time-deposit accounts are of four types, *viz.*, 1-year account, 2-year account, 3-year account and 5-year account. Any person is eligible to open an account but the persons may apply to the post-office together with the amount of deposit which should be in integral multiples of Rs. 50. Every time deposit is made in cash or by crossed cheque drawn in favour of the depositor or the Postmaster. The repayment of time-deposit is made only on the production of the pass book accompanied by an application.

The rate of interest paid to the depositor varies according to the period of time-deposit and is 9 per cent for 1-year deposit, 9·75 per cent for 2-year and 10.5 per cent for 3-year deposit and 11.5 per cent for 5-year deposit.

The interest is paid annually and is subject to income tax. The deposits in 2-year, 3-year and 5-year time-deposit accounts can be accepted through authorised agents under the standardised agency scheme.

[1] The III issue was discontinued in December 1980, while the IV and V issues in April 1981.

During 1970-71, the gross and the net collections in the above-stated time-deposits in Greater Bombay were the same, and amounted to Rs. 35,36,26,000. The following statement gives gross and net collections under the scheme in Greater Bombay since 1974-75 :—

(Rs. in lakhs)

Year	Gross collection	Net collection
1974-75	82,83·08	75,22·36
1975-76	1,15,15·33	83,01·02
1976-77	52,37·57	41,33·06
1984-85	4,17,59.95	1,09,59.00

Protected Savings Scheme : The scheme was introduced *vide* Rule 10A of Post-Office Savings Banks (C.T.D.) Rules, 1959 and Rule 11A of Post-Office Recurring Deposits Rules, 1970. The objective of the protected savings scheme is to promote regular savings of small savers, to provide an insurance cover in case of death of the depositor without any additional charge of premium, etc. in case of 5-year cumulative time deposit or recurring deposit accounts of Rs. 5, 10, 15 and 20 denominations opened on or after 1st July 1972. The accounts opened earlier but current on this date are also eligible. Since the 5-year and 15-year C.T.D. accounts have been discontinued with effect from 1st November 1973, only the existing 10-year C.T.D. accounts are covered by this scheme. In respect of accounts of Rs. 15 and Rs. 20 denominations, the benefit is available from 2nd June 1975 onwards.

The rate of compound interest at maturity in the case of recurring deposit account is 9·25 per cent per annum. In the recurring deposit account the depositor gets income-tax-free interest upto Rs. 3,000 a year and wealth tax exemption on deposits up to Rs. 1·5 lakhs of interest, while in 5-year C.T.D. account, the depositor gets whole income-tax-free interest upto Rs. 3,000 a year and complete tax exemption in addition to general limit of Rs. 1·5 lakhs.

Cumulative Time Deposits : The scheme came into force on 2nd January 1959 *vide* Post-office Savings Banks (C.T.D.) Rules, 1959. The object of the scheme is to enable depositors to provide for specific purpose by means of periodical deposits repayable in a lump sum inclusive of interest at the end of a specified period. Under this Scheme, deposits of Rs. 5 or any multiples thereof but not exceeding Rs. 1,000 for a period of 10 years can be opened. The maximum limit of total deposits in all the CTD accounts held by depositor during the entire period of accounts changes from time to time, the same from 1st February 1975 being 1,20,000 in case of single account and double the amount in joint account.

The amount of interest earned on deposits in C.T.D. accounts is exempted from income-tax. The deposits are also exempted from wealth tax. The deposits under 10-year accounts are entitled for rebate of income-tax subject to prescribed limits. The 10-year accounts opened on or after 1st October 1979 are eligible for 6·75 per cent compound interest.

The net collection under the C.T.D. scheme in 1958-59 in Greater Bombay stood at Rs. 3,10,000 which increased to Rs. 6,00,000 during 1960-61, and to Rs. 74,14,000 during 1970-71 and to Rs. 75,16,000 in 1975.

The following statement gives statistics regarding number of accounts opened and amount collected under the scheme in Greater Bombay :—

Particular	1975	1976
(1) Number of accounts as on 1st April ..	1,539	14,004
(2) Number of accounts opened in 1976-77—		
(*a*) Target	7,500	15,000
(*b*) Achievement	2,465	4,827
(3) Collection (in thousand Rs.)—		
(*a*) Target	2,20.00	2,50.00
(*b*) Gross	2,26.95	2,55.22
(*c*) Net	75.16	67.34

The gross and net collections in 1984-85 amounted to Rs. 9,55.60 lakhs and Rs. 5,07.15 lakhs, respectively.

Recurring Deposits Scheme: The scheme of Post Office recurring deposits (R.D.) came into force on 1st of April 1970 *vide* Post Office Recurring Deposits Rules, 1970. Under this scheme, only one type of account *viz.* 5-year account with a denomination of Rs. 5 or any multiple thereof can be opened.

The deposits opened after 1st March 1983 are eligible for 11.50 per cent compound interest per year. One withdrawal not exceeding 50 per cent of the deposits is allowed after one year.

During 1970-71, the total number of such accounts was 10,018 with net collection of Rs. 5,09,000. The number of accounts increased to 1,16,173 in 1975 and to 1,71,406 in 1976. The number of new accounts opened under the scheme in 1975-76 and 1976-77 were 55,233 and 85,312, respectively and the gross collection under the total number of accounts during the said period amounted to Rs. 1,73 lakhs and Rs. 2,71.23 lakhs, respectively. During 1984-85, the net collection amounted to Rs. 7,78.37 lakhs.

Sanchayika Savings Scheme: *Sanchayika* is a savings bank run by school-going children for themselves. The scheme was started in 1965 with a basic idea to inculcate the habit of thrift in the minds of children as also to make them aware of the benefits of savings and its role in the economic development of the country. The scheme is entirely operated by the school authorities themselves. A school savings bank called as *Sanchayika* opens a single savings account in the name of the school.

The *Sanchayika* accounts with effect from 1st November 1979, earn interest at 5.5 per cent from the Post Office savings bank. The progress of the scheme in Greater Bombay is shown in the following statement :—

Particulars	1975-76	1984-85
(1) Number of *Sanchayikas* as on 1st April	166	59
(2) Number of membership	20,165	28,431
(3) Collection in the year (Rs. in lakhs) ..	5.69	14.58
(4) New *Sanchayika* formed during the year	30	59
(5) Collection during the year (Rs. in lakhs)—		
(*i*) Target	0.75	N.A.
(*ii*) Achievement	0.22	14.58

Small Savings Agencies: A number of small savings agencies are functioning in order to promote and popularise small savings schemes. The number of total agents on the roll as on 1st April 1976 was 988 and the total collections made through them amounted to Rs. 13,10·79 lakhs during 1976-77. During 1984-85, the number of agents increased to 7,712 and the total collections of all agents amounted to Rs. 2,79,43.82 lakhs. The following savings organisations and agencies are working at present (1984).

(1) *National Savings Organisation* : It is working under the Ministry of Finance, Government of India.

(2) *Standardised Agency System* : The system was introduced with effect from 1st October 1960. Under this system, authorised agents are appointed by the respective State Government authorities. These agents canvass for the sale of National Savings Certificates, Social Security Certificates and Time Deposit Accounts. They are entitled for a commission of 2 per cent with effect from 1st July 1976 for the investments in the securities.

(3) *Mahila Pradhan Kshetriya Bachat Yojana* : The scheme was introduced from 1st April 1972 with a view to encourage habit of thrift (among the households), to popularise C.T.D. and R.D. accounts and to raise resources for the development plans. The area savings leaders are authorised to secure collections every month from the households in C.T.D. and R.D. accounts. The area savings leader claims commission for all the deposits made through him at the rate of 4 per cent with

effect from 1st July 1976. The agents issue printed receipts to the depositors for the monthly deposits collected from them and deposits the amount collected at the post office. The area savings leader is attached to one post office and is given area of about 1,000 households.

The agents are of two types *viz.*, institutional agents appointed through the National Savings Organisation and individual agents.

The agency is given to a woman either on a security of Rs. 100 or on fidelity guarantee. The number of *Mahila* agents as on 1st April 1975 was 83 which increased to 1168 on 1st April 1984. These agents operated 3219 C.T.D. and R.D. accounts up to 1st April 1975 which increased to 13697 accounts up to 1st April 1984. The collections under both the accounts in 1975-76 and 1984-85 amounted to Rs. 4·15 lakhs and Rs. 376.35 lakhs, respectively.

The total incentives given to these agents during 1984-85 amounted to Rs. 2.61 lakhs.

(4) *Pay Roll Savings Scheme* : The scheme was introduced in August 1959 with an object of promoting voluntary savings of the employees and wage earners in the private sector and was extended to Government offices in May 1962. Under this scheme an amount is deducted from the salary or wage bills of the employees every month and deposited in the post-office. The scheme is applicable to C.T.D., R.D., 2/3/5-Year T.D. accounts, 7-Year National Savings Certificates (IInd issue) and 10-Year Social Security Certificates.

The group leader is entitled to the reimbursement charges at the rate of 2·5 per cent with effect from 1st July 1976 for this work. Number of groups as on 1st April 1975 stood at 899, and the number increased to 1020 up to 1st April 1984.

The following statement gives statistics regarding the scheme in Greater Bombay for 1975-76 and 1984-85 :—

Pay Roll Savings Group	1975-76	1984-85
(1) Number of groups as on 1st April 1975 and 1984.	8,99	1,605
(2) Membership in old groups	1,42,328	8,46,566
(3) Collections in old groups (Rs. in lakhs) ..	2,91·27	11,87·55
(4) New groups formed in the year ..	121	143
(5) Membership in new groups	20,870	57,898
(6) Collection (Rs. in lakhs)—		
(*i*) Target	2·60	N. A.
(*ii*) Achievement	24·43	

(5) *Public Provident Fund Agency System* : The Public Provident Fund Agency System was introduced with effect from 1st November 1969. The

authorised agent is entitled for commission at the rate of 1 per cent on the amount at the time of opening the public provident fund account and at the same rate on all subsequent deposits into such accounts during the tenure of the agency provided that the accounts in question are not transferred to places outside the area of operation of the agent. The agency of the public provident fund agent is for three years or it can be for a lesser period also. The total collections under this scheme in 1975-76 and 1984-85 were Rs. 55 lakhs and Rs. 2143.88 lakhs, respectively.

Unit Trust of India : *Unit Scheme, 1964* : The scheme was introduced by the Union Trust of India, a statutory public sector investment institution with effect from 1st July 1964. The sale of ' Units ' through post-offices was started from 1st July 1966.

The scheme attracts savings of the people through the sale of its units under different schemes. These savings are then invested in the shares and debentures of good companies for the benefit of unit holders. Income from these investments after meeting the expenses of the Trust, is distributed to the unit holders annually as dividend.

The face value of a unit is Rs. 10. The application for purchase of units should be in multiples of 10 units. The units can be purchased from offices of the Unit Trust, branches of most of the commercial banks, branches of selected co-operative banks, all head post offices and departmental sub-post offices. The Units for children's gift plan are sold by the offices of Trust and branches of selected co-operative banks; while the units for unit linked insurance plan and reinvestment plan are sold only at the offices of the Trust and concerned offices of the Trust, respectively. The rate of dividend declared during 1982-83 was 13·50 per cent per annum.

Income by way of dividend up to Rs. 3,000 exclusively from Units is exempted from income-tax (1984). This is over and above the existing exemption limit of Rs. 7,000 for income from Units and other specified categories of investments. Investment up to Rs. 35,000 in Units is totally exempted from wealth tax. This is also in addition to the existing exemption limit of Rs. 2·65 lakhs for investment in Units and other specified categories.

Unit Scheme, 1976 (Capital Units) : The scheme was introduced on January 1st. It is primarily oriented towards achieving capital growth. The face value of each unit is Rs. 100 and the units are sold in multiples of 5. The actual sale and purchase price however, varies from time to time according to market value of the port-folio. The difference between the sale and repurchase prices varies between 8 and 10 per cent. Investments in these units enjoy the same income-tax and wealth tax exemptions as applicable to the units under the Unit Scheme of 1964.

Savings Bank Prize Incentive Scheme : The Scheme was introduced in 1973 by the Central Government to popularise Post-Office Savings Bank and to provide incentive for postal savings.

The account holders, who have kept a balance of not less than Rs. 200, which qualifies for interest for the months of December to March are eligible for participation in the draw for prizes which takes place in January and July every year. In each draw of prizes 11,116 prizes are distributed throughout the country. The first prize is of Rs. 2,50,000; five second prizes of Rs. 1,00,000 each; 10 third prizes of Rs. 50,000 each; 100 fourth prizes of Rs. 10,000 each; 1,000 fifth prizes of Rs. 500 each; and 10,000 sixth prizes are of Rs. 50 each. In all, the prizes worth Rs. 32,50,000 are distributed in each draw.

A code number for each account eligible to participate in the draw is given by the post-office in which the account stands.

A prize under this scheme is treated as income for the purpose of income-tax and is therefore liable to income-tax. In respect of prize-money exceeding Rs. 1,000 deduction of income-tax is made at source at the rate of 33 per cent of the prize-money.

Persons having single or joint accounts or accounts in the name of minors are eligible to participate in this scheme. But, public accounts, security deposit accounts, *sanchayika* accounts and provident fund, superannuation fund and gratuity fund accounts in post-office savings bank are not eligible for participation in this scheme. Accounts which have not been operated upon during the past six years and have been actually treated as ' silent accounts ' by the post-office are not eligible for inclusion in the draw. No account holder is eligible for more than one prize in each draw.

INSURANCE

Historical Background: Sir John Child, the then Governor of Bombay, was instructed by the Court of Directors to constitute an insurance office in the Bombay Island. In 1793, the Bombay Insurance Society was set up in Bombay by a few well-known European merchants.

The general insurance system on modern lines was started in second half of the 19th Century and the famous ' Triton ' was set up in 1850 to undertake general insurance business. In 1834, the ' New Oriental ' was established and in 1871 some prominent citizens of Bombay started the Bombay Mutual Life Assurance Society. The society was not very keen on extending its operations for several years after its formation and it was left to the Oriental Government Security Life Assurance Company Limited, the first proprietary life insurance office to be formed in India, to expand the business in an organised manner throughout India and abroad. A few years later, a few such life insurance companies such as Bharat and Empire companies were established.

In 1874, the famous ' Oriental ' was started and it gave a real impetus to the insurance business in India. Its success was mainly due to its economic and sound management. In 1881 there were 107 insurance companies, of which 38 dealt with fire, 22 with life and 47 with marine insurance in Bombay. During 1892-1900, a number of Indian insurance firms were established. But the number of Indians continued to patronise foreign concerns as they were considered to be more sound than Indian firms. In 1909, Bombay contained 34 fire insurance companies, 33 life insurance companies and 55 marine insurance companies. Companies whose head offices were in Bombay numbered 7 and most of them transacted business in life insurance. The local life insurance companies were, the Indian Guarantee and Securityship Association, established in 1872 with a nominal capital of Rs. 5 lakhs; the Oriental Government Security Life Assurance Company, Ltd., which started business in 1874; the Mutual Provident and Guarantee Society Ltd., established in 1885; and the Empire of India Life Assurance Company Ltd., which commenced business in 1897 with an authorised capital of Rs. one crore.

During the early part of the present century (1901-1918), the cult of ' Swadeshi ' led to the promotion of a number of Indian insurance enterprises. Legislation was also enacted for insurance during this period. The First World War gave a further impetus to Indian insurance business. The life insurance business transacted by 1916 was to the tune of Rs. 23 crores. Insurance companies from U.S.A., China and Germany also started their operations in India.

In 1919, the New India Insurance Co. was started by Tatas first for general insurance and later in 1929 for life insurance business too. Lalji Naranji and Manu Subedar promoted the Jupiter General Insurance Co. During 1920 to 1939, a number of insurance firms were established by the Indians and the insurance business experienced a boom; well-known among these were the Vulcan, the Laxmi and the New Insurance. There were number of institutions in Indian insurance business, and high rebates, excessive commissions and increased operation expenses became the order of the day; therefore the first comprehensive legislation was enacted covering all branches of insurance and check the evils in the business.

A number of organisations such as the Life Insurance Council and the General Insurance Council were established under the Act. The first one was dissolved after nationalisation but the General Insurance Council is in existence.

The Indian Life Assurance Companies Act, 1912 was the first piece of legislation, which was later amended in 1928. This was substituted by

another Act *viz.*, Indian Insurance Act passed in 1938 in order to introduce sound business practices in India. The same was further amended in 1941, 1942, 1944, 1946 and 1948.

The immediate impact of the war was to reduce the insurance business from Rs. 43 crores in 1939 to Rs. 33 crores in 1940. But the confidence was restored and during 1941 and 1945, 25 new life insurance offices were established. Except inflation period, the insurance business showed a considerable increase. New insurance firms such as Devkaran Nanjee, Trinity Mutual, Jayabharat and Ajay Mutual were floated during this period, and the business of foreign concerns declined during 1939 and 1951.

It was in the wake of the freedom movement that such companies as the New India, the Jupiter and the Laxmi came into existence. A further spurt in the formation of new companies was witnessed during the World War II when inflationary pressure tended to swell the volume of insurance business in the country. With a view to establish a closer watch in the matters of management, investment of funds and expenditure of insurers, Government established a department of Insurance under the authority of the Controller of Insurance and enacted the Insurance Act of 1938. This Act was extensively amended in 1950 when further controls in the interest of policy holders were introduced.

Interlocking of business and insurance finance increased the concentration of economic power in a few hands. In 1945, Sir Cowasjee Jehangir Committee was appointed to examine the conditions existing in Indian insurance business. The committee concluded that the interlocking of bank and insurance finance was most injurious to national economy. The legislation on the basis of the committee's report was undertaken in 1950.

A few companies including Central India Insurance were formed during the period after Second World War, but mostly the life insurance business had started consolidating its position.

1951-1956 : Even though during the initial period of the First Plan, the increase in the insurance business was not significant, but during the entire plan period, there was a substantial increase in business. The staff and group insurance schemes were introduced. The life insurance business during the period was growing even though no new business units were established. The non-Indian offices were declining in importance. Life insurance was an important capital formation agency during 1955.

1956-1965 : The historic decision of nationalisation of life insurance in India was declared on 19th January 1956 by the then Finance Minister which affected 154 Indian insurance firms, 16 non-Indian insurers and 75 provident societies.

By the Life Insurance (Emergency Provisions) Ordinance 1956, the management and control of life insurance business in India including foreign business of Indian insurers and the Indian business of foreign insurers was vested in Central Government and thus business in life insurance passed from the private sector to public sector. This was the first step towards complete nationalisation of life insurance business in India, a step never attempted anywhere in the world before on such a gigantic scale and which opened a new chapter in the history of Indian insurance. A comprehensive legislation was introduced shortly afterwards and resulted in the enactment of the Life Insurance Corporation Act of 1956.

Nationalisation aimed at widening and deepening all possible channels of public savings and mobilising these savings more effectively to finance development plans.

On September 1, 1956, the Life Insurance Corporation of India was established and took over the entire assets and liabilities of life insurers in India. From 1957, there was a steady rise in the new business in India as well as outside India. But the inflationary trend in the economy did lead to an upward trend in the expenses of Life Insurance Corporation.

By the end of the IIIrd Five-Year Plan, insurance consciousness spread significantly in the country. About 70 per cent of new life policies were issued to persons participating in insurance for the first time. A number of new schemes were introduced by the Corporation such as group and joint saving insurance, salary saving schemes or collection of premium through the post-offices. The Corporation also actively supported the house building activities through the life insurance policies.

In 1958, number of proposals for life insurance in Greater Bombay stood at 73,779 and the same increased to 94,510 in 1959. The sum proposed in 1958 was Rs. 40,94,33,681; and the same increased to Rs. 51,48,37,717 in the following year. Number of policies and sum assured also showed an increase in Greater Bombay as follows:—

	Number of Policies	Sum assured (Rs.)
1958	66,996	37,27,00,572
1959	84,045	45,95,77,783

Structure and business of Life Insurance Corporation : The Life Insurance Corporation of India, was set up in 1956 to take over the life insurance business of all the insurance business in India. In 1964, it entered the field of general insurance. The capital of the Corporation is wholly provided by the Central Government. The head office of the Corporation is in Bombay and there are five zones with their zonal offices at Bombay, Calcutta, Madras, Delhi and Kanpur.

The Corporation is managed by the Board of Directors. The policy directives are issued by the Government of India, and it is interpreted by the Board of Directors. The policy is applied by the executive committee. It also co-ordinates and controls the functions of different departments.

Network of offices of the Corporation: On the eve of nationalisation, there were 245 private insurance companies operating in the country; that covered nearly 97 centres. The prospects of expansion of business remained fairly limited prior to the nationalisation as the erstwhile insurers were mainly interested in catering to the needs of urban populace where insurance business was profitable and therefore interior rural centres were neglected. The nationalisation witnessed a shift in the outlook of the general populace, in their way of thinking and spread of life insurance came to occupy the foremost importance. As a result, a large number of offices were opened to undertake the life insurance business. The growth in its activities can be seen from the following statistics:—

Year	Number of Branch Offices	Number of Sub-offices
1956	182	34
1960	267	120
1965	388	145
1970	424	115
1976	659	23

In 1981-82, the district-wise branches of the Bombay division, of which the Greater Bombay district forms a part, were as follows :—

Greater Bombay 62; Thane 8; Raigad 2 and Goa 5. The departments of training of agents, salary savings scheme, and group insurance and superannuation, are also located in Bombay.

The area-wise branches of Life Insurance Corporation in Greater Bombay during 1981-82 are shown below :—

Area	Number of branches
Fort	24
Dadar	4
Sandhurst Bridge	5
Goregaon	1
Ghatkopar	1
Vikhroli	1
Bandra	1
Santacruz	5

Area	Number of branches
Malad	1
Andheri	1
Kurla	1
Borivli	1
Mulund	1
Chembur	1
Nariman Point	7
Churchgate	1
Kandivli	1
Khodadad Circle	2
Ballard Estate	3

Agency Force : An agency unit forms a link between the Corporation and its policy holders. There were more than 2 lakh agents on the roll of the Corporation in 1956, the number of active agents was, however, small. There was, however, dropout in the total number of agents for various reasons, the principal among them being the inability of quite a large number of part-time agents to do the minimum quantum of business laid out by the Corporation.

The strength of life insurance agents in Greater Bombay area is given below :—

As on	Number of Agents
31st December 1956	16,105
30th April 1960	7,626
31st March 1968	12,327
31st March 1976	12,542
31st March 1982	8,683

Out of 8,683 total agents in Greater Bombay in 1981-82, 6 were crorepati agents who undertook a business of Rs. 697.41 lakhs.

Career Agents : The Career Agents Scheme was launched in 1972 to attract educated youth towards life insurance business. These career agents have made sizeable contribution to business production. The LIC started this Scheme in the beginning at 13 centres in the country, by the end of 1976, the strength of these centres rose to 38 including Greater Bombay. Besides there were eight direct agents in Greater Bombay district in 1975-76.

Development Officers : Besides the agents, the LIC gets business through the Development Officers appointed for the specific purpose. Since nationalisation of insurance the Development Officers play a pivotal role in recruiting, guiding, and supervising the agents. The LIC had 4830 Development Officers in 1958 in the country with an average business per Development Officer of Rs. 6·5 lakhs. The number increased to 7698 during 1975-76 along with the average business per Development Officer which amounted to Rs. 23·6 lakhs. There were 50 crorepati Development Officers in Greater Bombay in 1981-82 whose individual new business was more than one crore of Rupees. The strength of Development Officers in Bombay division and in Greater Bombay area during the same period was as follows :—

Year	Bombay Division	Greater Bombay District
1958	304	N.A.
1975-76	611	547
1981-82	515	449

Progress of New Business : The total new business of the Life Insurance Corporation at the time of nationalisation in terms of sum assured was Rs. 1,48·5 crores. The various measures adopted since nationalisation resulted in a spectacular increase in the individual new business as in 1975-76, the Life Insurance Corporation completed a new business of Rs. 21,16·30 crores under individual assurance and Rs. 32,69·04 crores under group insurance making a total of Rs. 53,85.34 crores. The relevant figures for the Bombay division and for the Greater Bombay area are shown below :—

(1) BOMBAY DIVISION

Year	New business in terms of policies	New business in terms of sum assured (ordinary assurance) (Rs. in crores)	New business in terms of sum assured (Group insurance and superannuation scheme) (Rs. in crores)	Average sum assured per policy (ordinary assurance) (Rs.)
(1)	(2)	(3)	(4)	(5)
1956 ..	68,776	33·45	3·76	4,863
1965-66 ..	1,44,723	1,05·80	15·65	6,229
1970-71 ..	1,41,609	1,81·46	45·38	9,612
1975-76 ..	1,80,939	2,22·43	1,68·36	12,293

(2) GREATER BOMBAY

Year (1)	No. of proposals (2)	Sum proposed (Rs.) (3)	No. of policies (4)	Sum assured (Rs.) (5)
1958 ..	73,779	40,94,33,681	66,996	37,27,00,572
1959 ..	94,510	51,48,37,717	84,045	45,95,77,783
1965-66 ..	N.A.	1,03,84,11,269	1,30,210	1,00,33,57,371
1967-68 ..	N.A.	1,03,32,48,426	1,06,280	97,95,74,101
1975-76 ..	1,62,262	37,62,76,500	15,600	36,60,16,200
1981-82* ..	3,27,345	6,28,77·37	1,54,980	2,29,04·76

*Figures of Rupees for the year 1981-82 are in lakhs.

Business under Salary Savings Scheme : The salary savings scheme was implemented with effect from 1st September 1966, on an experimental basis in some of the offices situated in Bombay. Subsequently the Government extended it to class III and class IV government servants working in all the offices and departments throughout the State of Maharashtra.

In 1969, the salary savings scheme was finalised with approximately 3,800 firms/institutions in Greater Bombay and the number of policies secured under the scheme from the employees of these firms/institutions was approximately 3.5 lakhs.

The progress under this scheme during 1974-75 and 1975-76 in Greater Bombay was as follows :—

	1974-75		1975-76	
	Number of policies	Sum assured (Rs. in lakhs)	Number of policies	Sum assured (Rs. in lakhs)
Greater Bombay ..	53,900	40,35·5	51,263	38,55·07
Bombay Division ..	66,487	4,48,41·21	62,997	46,34·40

Business under Group Scheme : The following statement gives the business of group scheme by G and S Department (Group Insurance and Superannuation) completed, through branch offices in Bombay division and also in Greater Bombay area during 1975-76 :—

Division/District	Number of Schemes	Number of Lives	Sum assured Rs.	Annuity per annum Rs.	Premium income Rs.
Bombay Division	272	30,117	36,30,24,921	2,48,364	1,70,72,740.78
Greater Bombay	262	27,740	35,04,70,726	2,48,364	1,62,87,019.71

First Premium Income : The statistics of first premium income for both the Bombay division and Greater Bombay branches are given below :—

Division/District	First Premium (1975-76)		
	Non-salary savings scheme	Salary Savings scheme	Total
Bombay Division ..	7,20,26,983	22,01,994	7,42,28,977
Greater Bombay ..	6,65,46,259	18,59,904	6,84,06,163

During 1975-76, the Corporation introduced a special policy known as the Grihalaxmi Policy designed to provide life-long security for the housewife. The main feature of the policy is that while the husband who is the proposer pays the premium, the wife is the beneficiary and a trust in her favour is created under section 6 of the Married Women's Property Act. The plan provides return of all premia to the proposer if the beneficiary dies before the age of 55.

STOCK EXCHANGE

The Stock exchange is an important constituent of capital market in any economy and provides the infrastructure for economic democracy combined with planned economic development. It provides a market place for the purchase and sale of securities. The origin of the stock market therefore goes back to the time when securities representing title to property or promises to pay were first issued and made transferable from one person to another. At the end of eighteenth century, the East India Company was the dominant body which used to transact business in its loan securities. By 1830, due to considerable increase in the volume of business in loans as well as in corporate stocks and shares, the business in Bombay was transferred in the shares of commercial banks like the Chartered Mercantile Bank, the Chartered Bank, the Agra Bank, the Oriental Bank and also the old Bank of Bombay. The shares of cotton presses were one of the prominent shares in Bombay brokerage.

Between 1840 and 1850, there were about 6 brokers recognised by both the banks and the merchants, with an entry of late Mr. Premchand Raichand as a broker in 1849-50, the trade of brokers came into prominence. Within a short period he monopolised the broking business in shares, stocks, bullions and partly exchanges and held all the strings of business in his own hands. The display of that brilliant financial strategy by him broking business in shares as well as in the best gilt-edged securities of those days crowned him as the " Napoleon of Finance".

Premchand's career attracted many other men into the field and by 1860, the number of brokers increased to 60.

In 1861, the American Civil War broke out and it totally stopped the supply of cotton from U.S. to Europe, resulting in the cotton famine which at large led to unlimited demand for Indian cotton available in the largest quantity in Bombay Presidency. The large exports of cotton were paid for in bullion which poured in Bombay from Liverpool in the shape of silver and gold. Out of the total imports, bullion which amounted to Rs. 85 crores between 1861-62, and 1864-65, Bombay alone absorbed Rs. 52 crores giving an average of Rs. 13 crores per annum.

The import of this large amount of bullion was an addition to the wealth of the city and served as fresh capital for a number of new ventures such as banks and financial associations, trading, cotton cleaning, pressing and spinning, hotel companies, shipping and steamer companies, etc.

During the 'Share Mania' of 1861-65, the number of brokers increased to 200. The first vital spark of speculation authority and wealth was kindled by Asiatic Banking Corporation originally named as the Bombay Joint Stock established in 1863. But at the end of American Civil War, a disastrous slump followed and caused widespread desolation.

The depression was long and severe but the 'Share Mania' had the important and lasting effects such as the expansion of liquid capital, and establishment of regular market in securities which helped at large to make Bombay the chief centre of money and capital market.

It was in those troubled times between 1868 and 1875 that brokers organised an informal association, and finally on or about 9th of July 1875, a few native brokers resolved upon forming an association in Bombay for protecting their trade. They also thought of providing a hall for the use of the members of such association. An indenture was executed on the 3rd of December 1837, constituting the articles of exchange and the stock exchange was thus formally established in Bombay under the title of ' Native Share and Stock Brokers' Association '.

In 1876, when the stock exchange was constituted, the entrance fee for a non-member was Re. 1 and the number of members on the list was 318. The commerce and industry thus again came into prominence, credit was restored and prosperity was regained in Bombay with the establishment of the cotton industry, the building of new docks, and the extension of railway routes for transport of goods. The stock exchange played an important part in these developments.

The stock exchange thus channelled the flow of investment into stocks and gilt-edged securities and materially helped Government and also trade and industry. Over almost a hundred years, during which the stock exchanges have existed in the country, through their medium, the Central and State Governments have raised crores of rupees by floating public loans.

As the exchange grew in size, so did its accommodation. The premises taken on hire in 1874 on Dalal Street were given up when what is now known as the Stock Exchange old building situated at Dalal Street was acquired in 1895. The brokers' hall was thrown open on the 18th January 1899. In 1928, the premises were further extended by acquiring from the Bombay Municipal Corporation for Rs. 5 lakhs the adjoining plot of land abutting on Apollo Street and flanked by Dalal Street and Hamam Street.

The stock exchange at Bombay has continued to expand in size and in its stature and influence. It is not only the oldest stock exchange but also the oldest trade association in the country. It is one of the voluntary non-profit making associations.

In the earlier formative years, the stock market passed through many turbulent phases such as share mania in 1861-65, coal boom in 1904-1908, bank failures in 1913, the First World War boom, the Post-World War slump in 1923-24, and the spate of corners in 1921-25. The Bombay share market recorded a continuous trend of evolution with emergencies gradually recurring after short intervals such as Wall Street boom and crash of 1929, World Economic Depression of 1931-32, Currimbhoy Cotton Mills group crisis of 1933, steel boom of 1937, Second World War crisis of 1941, Second World War boom and post-war slump of 1946-47, Commodity markets crisis of 1952-53, and Equity boom and Chinese aggression emergency of 1962-63.

The Bombay Stock Exchange was recognised on August 31, 1957 on a permanent basis, described as a voluntary non-profit making association. Its membership in March 1958 was 501 and the entrance fee (card value) was Rs. 17,500 with membership deposit of Rs. 20,000 and annual subscription of Rs. 15.

There is no distinction between the jobbers and brokers on the Bombay Stock Exchange. A member can act as a jobber or a broker though when he is busy on his account, he has to give a different contract note. Under the Securities Contracts (Regulation) Act, 1956, seven stock exchanges have been recognised in the country. The pattern of regulation under the Act is that of unitary control. The Bombay Stock Exchange (1875) is one of them; others are those in Ahmedabad, Calcutta, Madras, Hyderabad, Indore and Delhi. The rules, by-laws etc. have been made uniform for all the exchanges.

The Bombay Stock Exchange which is more popularly known as the 'Dalal Street' has been granted permission on a permanent basis. The firms cannot be the members of the stock exchange in their own right. Individuals and partners, and if there are other stock exchanges in the city, those can be the members of the stock exchange. If an individual is denied membership an appeal can be made to the Government whose

decision is binding on the recognised stock exchange. Some of the stock exchanges are companies limited by guarantee or public limited companies under the Companies Act. But in Bombay and so also in Ahmedabad, the stock exchange is in the nature of a private club and the president is a whole-time salaried official. It is not registered under any Act.

The general administration of the stock exchange is entrusted to a committee, which in Bombay is known as the governing board. There are three sub-committees for conducting the routine business of management; they are, the arbitration committee, the defaulter's committee and the listing committee. The rules and bye-laws for the general conduct of business are framed by the stock exchange authorities and approved by the Government. Now they are more or less uniform in all the stock exchanges and conform to the rules framed by the Government under the Securities Contracts Regulation Act, 1956. Forward trading is permitted on the basis of fortnightly settlements in Bombay and on the Bombay market, there are a large number of scripts on the forward list—as many as 74, while in Calcutta they are 18. The clearing house at Bombay is managed by the Bank of India. Next to Calcutta, Bombay has the largest number of listed shares, though cotton textiles and bank shares do predominate.

The jobbers on the Bombay stock exchange are known as '*Taravani-walas*' as they are said to take away the cream of the business. This group helps to maintain a broad and active market, but they also, it is stated, accentuate the fluctuations on the market. The members also employ clerks for help and they are registered as authorised clerks; there are about 1,200 clerks in Bombay stock exchange. They help in the transaction of business of the members. The trading on the stock exchange takes place during stipulated hours. The bids are offered loudly and there is lot of noise around. A large gathering of members and authorised clerks for trading, is the feature of Bombay stock exchanges, as there is a large number of transactions, involving crores of rupees on these exchanges. There are fluctuations in the prices and yields of stocks and securities and they reflect the economic as well as non-economic changes in the economy. The taxation and the economic policies of the Government get reflected in these changes. There was the post-Korean war boom in the market followed by a crash in 1952, which was tided over smoothly. There have been no serious payment crisis for several years recently. The increase in the number of listed scripts, the controls imposed by the Indian Companies Act, and the declining role of the managing agents have restrained the speculative activities on the market. Small investors are entering the market and the role of Government institutions such as L.I.C., Unit Trust of India is becoming more significant. The Stock Exchanges themselves have been making an effort to restrain

over-trading through a system of margins which is in vogue in Bombay stock exchange. Here it is operative in respect of ' badla ' transactions only *i.e.* transactions which are carried over to the next settlement. There is the margin money which is to be deposited with the clearing house and is not returnable until the settlement day of the following clearing *i.e.*, it is retained for about three weeks or so. Further the members of the Bombay stock exchange are required to submit every day a statement of outstanding business in respect of a few highly speculative scripts, and the president of the exchange has a right to call for additional margins from any member if there is a marked increase in his outstanding business or the president may ask the member to liquidate a portion of his outstanding business. Thus the stock market authorities as well as the Government are making an effort to restrain the speculative activities on the market. The Reserve Bank of India also through it's controls, restrains the flow of credit to the stock market and the speculative and cornering activities of the members. On the whole, the record of working of the stock exchanges has been satisfactory. The stock exchanges have provided continuous market to a growing volume of securities. They have also contributed to the growth of investment habit, particularly in the urban areas. The speculative activity on the stock exchanges is not exces sive and serious payment crisis have not been experienced. Through stringent listing requirement, they have raised the standards of company reporting and established well defined practices as regards new capital-issues. The Government of India, through the Securities Contracts (Regulation) Act has formulated a number of provisions for the regulation of stock exchanges. A separate division called the Stock Exchange Directorate under the Ministry of Finance has been established. It has it's main office in Bombay. The Government has its representatives on the governign bodies. Through this representation and the functioning of the Reserve Bank of India, efforts have been made to evolve suitable measures for checking excessive speculation and developing sound share market practices on the stock exchanges.

Trading in the securities is carried out at the market, generally through the agency of the stock-brokers. The private securities are listed on the stock-exchange and the member brokers are allowed to deal only in these securities. The transactions in these shares are mostly spot transactions; delivery and payment are completed after the contract is made. The stock-markets are thus the organised markets for securities and as in case of exchange of commodities at the market, they are also subject to basic influences of demand and supply. The stock exchanges ensure the liquidity of capital and the evaluation of securities and direct the flow of savings into the most productive form of enterprise. On the market, genuine speculation has the role of forecasting the real value of the investments, and this is carried out through forward trading.

There are two types of securities dealt on the stock exchange: (*i*) proprietorship securities which include the ordinary shares, the preference and deferred shares; and (*ii*) creditorship securities, *i.e.*, debentures, gilt-edged stocks etc. Here the rates of interest as the return on the securities are fixed. On the stock exchange, the new issues of securities are floated largely through the prospectus. Under the Securities Contracts Act, a company is eligible for an official quotation on the stock exchange if at least 49 per cent of the issued capital is offered to the public for subscription in the first instance. The balance, through the stock-broker may be financed by associates and friends or the institutional investors. The underwriting of shares is also resorted to for ensuring the success of the issues offered to the public. The industrial finance institutions perform this function of underwriting.

The brokers, jobbers and authorised clerks are the persons who transact on the stock market. They are classified into bears and bulls—the former operating on the expectation of a fall in prices and the latter on the expectation of a rise in prices of securities. The transactions in shares are done on the floor of the exchange which is a place of great commotion and hectic activity. The floor is divided into a number of separate booths, one for each particular security where the business in that script is transacted. The transactions on the 'floor' of the exchange are done by word of mouth and no contract is signed when the bargain is struck. The broker notes down the transaction in a small pad with all the details. After the day's transactions, the authorised clerk enters the transactions in the books maintained in the office with the details as well as the brokerage charges. Next day the contract notes are signed and sent to the client. The shares can be bought for cash—described as delivery contracts or the purchase transaction and can be settled within a prescribed period and they are described as forward deals. Forward deals are allowed only in few selected scripts which are generally very active and broadly held. The transactions in forward deals can be carried over by purchase or sale to the next settlement through what are known as '*badla*' transactions. There are also option dealings known as '*Teji-Mandi*' operations on the stock exchange. The option means the right to choose; it may be single or double *i.e.*, both for the buyer and the seller—whether to take or not to take up the shares within the prescribed specific period which is usually of three months. There are the 'put options' where the striking price is the current market 'bid' price plus a sum of contango (carry over) interest on the value of the share calculated, over the period of the option. In case of a 'call option', it is the current market offered price plus interest; the cost of option is called the option money and its magnitude depends mainly on the nature and marketability of the security and the current market conditions. Options provide a 'hedge' against price fluctuations.

The option price would be a form of insurance against a rise and the investor would be in a protected bear position. The Securities Contracts (Regulation) Act has legally prohibited option dealings but on the Bombay stock exchange (and so also at Calcutta stock exchange) unauthorised '*Teji-Mandi*' business does take place.

The transfer of securities on the stock exchange is affected through a 'deed' of transfer between the one and the other holder, by a formal agreement duly stamped and signed by both the buyer and the seller. This is transferred to the register of shareholders maintained by the companies. Bearer shares can be transferred through delivery but such shares are very few on the Indian Stock Exchange. The process of registration involved in these transfers create a long delay and inconvenience to the operators on the stock market. With a view to overcoming this difficulty, a system of 'blank transfers' has been devised on the stock exchange, and has become an important part and parcel of stock exchange mechanism. A blank transfer is a transfer deed wherein the buyer's name is not entered or is left blank, so that the transfer form can be pasted quickly. This system of blank transfers is said to encourage speculation as the delivery becomes simple and there is also the saving of stamp duty. It assists '*badla*' transactions and is a common form of securing a loan against the collateral security of share. But by facilitating forward business, the system of blank transfer encourages excessive speculation. It also facilitates manoeuvring of managerial control over companies by concealing the identity of the real holder. The Atlay Committee in 1924 had recommended the total abolition of blank transfers and a sharp reduction in the stamp duty on transfers. The Morrison Committee in 1936 made a similar recommendation. The Securities Contracts Regulation Act empowers the stock exchanges to make bye-laws for the regulation or prohibition of such transfers. The Indian Companies Act of 1951 also has provisions for prohibition of such control of companies through the blank transfer transactions. The blank transfers, under this regulation cannot be kept open for more than a year if the company pays the dividend annually or for more than six months in case of companies declaring half-yearly dividend. The reduction in stamp duty on transfers in 1955, has also discouraged such transfers.

Listing of Securities : There are certain standards or listing requirements set by the exchange and the company has to agree to certain terms and conditions laid down. The governing body of the stock exchange is responsible for granting permission to the company to have it's scripts traded on the exchange. The main object of listing is to provide a measure of safety in dealing, to the investors and is an indirect safeguard against unscrupulous manipulations. Listing does not necessarily mean the soundness of the company which has to be ultimately judged by the

investor. Generally, the shares of the large companies are listed on the stock exchange, after informal discussion between the representatives of the company and the stock exchange authorities. The Securities Contracts Regulation Act, 1956 contains certain provision in respect of listing of securities on the stock exchange. It empowers the Government to compel a public limited company to have its shares, bonds, debentures listed, even by fulfilling the conditions which are prescribed by the stock exchange. A company which has been refused a quotation of its shares has a right of appeal to the Central Government which has the power to change the decision of the stock exchange. Certain provisions are imposed on the stock exchange by the Act.

The stock exchange conducted a survey* of 515 companies listed in Bombay in 1968-69. It covered 90 per cent of the total number of companies and 95 per cent of the total equity capital quoted in Bombay. According to the survey these 515 companies had 18·60 lakh book shareholders in 1968-69 as against 9·10 lakh book shareholders as per an earlier Stock Exchange survey covering 243 companies out of 300 companies listed in Bombay in 1961.

The following statement and Table No. 7 reveal the findings of the stock exchange survey in Bombay in 1968-69 :—

Size of Holding	Percentages					
	No. of share-holders cleared	Amount	No. of share-holders non-cleared	Amount	No. of share-holders	Total Amount
Small						
(Below Rs. 20,000) ..	98·67	36·86	98·96	27·30	98·86	30·44
Medium						
(Rs. 20,000 to Rs. 50,000)	0·88	6·70	0·55	4·19	0·66	5·01
Large						
(Rs. 50,000 and above)	0·45	56·44	0·49	68·51	0·48	64·55
	100·00	100·00	100·00	100·00	100·00	100·00

* *Profile of Stock Exchange Activity in India*, published by Bombay Stock Exchange, 1970.

Category of owners	Percentages		
	Cleared	Non-cleared	Total
1. Individual	7·28	15·90	13·05
2. Joint-stock-companies	12·70	26·57	22·00
3. Financial institutions	22·16	19·73	20·79
(*a*) Unit Trust of India	1·73	1·41	1·75
(*b*) L.I.C.	11·25	6·49	8·73
(*c*) Banks	7·35	2·80	3·65
(*d*) Others	1·83	9·03	6·66
4. Others	0·08	0·13	0·12
	43·07	62·33	55·96

The stock exchange survey* revealed that the position of cleared companies was even more favourable in respect of big shareholders.

The ten highest holders covered by the stock exchange survey had 43 per cent of the total paid-up equity capital of cleared companies as against 62 per cent in the case of non-cleared companies. L.I.C. was found to be the biggest among the shareholders with a holding of about 12 per cent of the total capital of cleared companies as against six per cent in the case of non-cleared companies. The survey also revealed that the percentage of total paid-up capital of cleared companies was 13 in the case of joint-stock companies and seven in the case of individuals as against 27 and 16 respectively, in the case of non-cleared companies.

The growth and development of the Bombay Stock Exchange from 1946 to 1979 is given in Table No. 8. The same also gives the market pattern of stocks listed on Bombay Stock Exchange.

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TABLE No. 7

FINDINGS OF STOCK EXCHANGE SURVEY IN BOMBAY, 1968-69

(Amount in crores of Rs.)

Size of Holdings	Number of Shareholders						Nominal Value of Holding					
	Cleared		Non-cleared		Total		Cleared		Non-cleared		Total	
	No.	Per cent	No.	Per cent	No.	Per cent	Amount	Per cent	Amount	Per cent	Amount	Per cent
10,000 ..	607,614	96·79	1,207,802	97.94	1,815,416	97·55	76·31	30·29	122·21	23·79	198·52	25·93
10,001–20,000 ..	11,814	1·88	12,558	1.02	24,372	1·31	16·55	6·57	18·00	3·51	34·55	4·51
20,001–30,000 ..	3,268	0·52	3,888	0.32	7,156	0·38	8·14	3·23	9·72	1·89	17·86	2·33
30,001–40,000 ..	1,431	0·23	1,649	0.13	3,080	0.17	5·05	2·01	6·01	1·17	11·06	1·44
40,001–50,000 ..	811	0·13	1,272	0.10	2,083	0·11	3·68	1·45	5·81	1·13	9·49	1·24
Above 50,000 ..	2,794	0·45	6,045	0.49	8,839	0.48	142·18	56·44	351·92	68·51	494·10	64·55
Total ..	627,732	100·00	1,233,214	100·00	1,860,946	100·00	251·91	100·00	513·67	100·00	765·58	100·00
Holdings of ten highest holders of which—							108.20	42.95	320.20	62.33	428.40	55.96
(1) Individuals ..							18·29	7·26	81·66	15·90	99·95	13·05
(2) Joint-stock companies							31·91	12·66	136·51	26·57	168·42	22·00
(3) Financial Institutions							57·80	22·95	101·34	19·73	159·14	20·79
(*a*) U.T.I. ..							6·16	2·45	7·22	1·41	13·38	1·75
(*b*) L.I.C. ..							33·47	13·29	33·34	6·49	66·81	8·73
(*c*) Banks ..							13·57	5·39	14·38	2·80	27·95	3·65
(*d*) Others ..							4·60	1·83	46·40	9·03	51·00	6·66
(4) Miscellaneous ..							0·20	0·08	0·69	0·13	0·89	0·12

TABLE No. 8

GROWTH AND DEVELOPMENT OF BOMBAY STOCK EXCHANGE, 1946-79

As on 31st December	No. of listed companies	No. of stock issues listed	Paid up value (Rs. in crores)				Market value of capital (Rs. in crores.)	Average per company (Rs. in lakhs)	
			Equity	Prefe-rence	Debentures	Total		Total capital	Market value
1946	197	271	....	....	....	1,23	....	63	....
1961	297	538	2,95	56	31	3,82	6,45	1,28	3,17
1965	502	891	3,32	73	84	4,89	8,41	1,37	1,68
1970	580	1060	8,52	1,23	1,41	11,16	17,51	1,92	3,02
1976	797	1478	13,96	1,44	2,70	18,10	25,91	2,27	3,25
1979	935	1609	18,76	1,51	3,93	24,20	40,29	3,58	4,30
Percentage increase in 1976 over 1946.	305	445	....	....	....	13,71	....	2,60	....
Percentage increase in 1976 over 1965.	59	66	3,20	97	2,21	6,38	2,08	66	93

The table shows that over the years from 1946 to 1979 the number of listed companies quoted in Bombay went up by 738 and the corresponding number of listed stocks by 1,338. The paid-up value of listed stock simultaneously increased by Rs. 22,97 crores.

In 1971-72, on the basis of total assets, nine of the 20 bigger companies in India were quoted in Bombay, four in Calcutta, four in Delhi, two in Ahmedabad and one in Madras. On the basis of net worth, eight were quoted in Bombay, six in Calcutta, four in Delhi, and one each in Madras and Ahmedabad; while on the basis of total gross sales, eight each were quoted in Bombay and Calcutta, and two in Delhi and one each in Madras and Ahmedabad.

The structural pattern of listed stocks is outlined in Table No. 9.

TABLE No. 9

STRUCTURAL PATTERN OF LISTED STOCKS AT BOMBAY STOCK EXCHANGE

Particulars	(As on 31st December 1969)	(As on 31st December 1979)
No. of companies listed	570	2,133
No. of stock issues listed—		
(*i*) Total	1,042	3,569
(*ii*) Equity	608	2,364
(*iii*) Preference	360	1,020
(*iv*) Debentures	74	185
Paid-up Capital (Rs. in Crores)—		
(*i*) Equity	7,83·75	27,40·37
(*ii*) Preference	1,11·97	2,29·59
(*iii*) Total	8,95·72	29,69·99
Debentures amount outstanding (Rs. in Crores)	1,18·70	5,03·59
Total capital employed (Rs. in Crores)	10,14·42	34,73.30
Market value of capital employed (Rs. in Crotes)—		
(*i*) Equity	12,68·55	45,60·54
(*ii*) Preference	1,02·10	1,83·91
(*iii*) Debentures	1,14·75	4,79·28
(*iv*) Total	14,85·40	52,23·73
Average per company (Rs. in lakhs)—		
(*i*) Share capital	158	139
(*ii*) Total capital	178	163
(*iii*) Market value of total capital	261	245
No. of companies on the cleared list	73	N.A.

The class-wise pattern of listed stock issues in Bombay Stock Exchange as on 31st December 1979 was as follows :—

Number of companies listed..	935
Equity, preference and debentures	45
Equity and preference	315
Equity and debentures	23
Preference and debentures	....
Equity only	546
Preference only	1
Debentures only	5

The overall denomination pattern of listed stocks in Bombay is shown in the following statement:—

(As on 31st December 1979)

Denomination (Rs.)	Equity		Preference		Debentures	
	No. of stock issues listed	No. of units issued (in '000)	No. of stock issues listed	No. of units issued (in '000)	No. of stock issues listed	No.of units issued (in '000)
1	..	....	..	....	..	....
2	1	15,00	..	....	..	....
5	7	5,48,65	2	1,38	..	....
10	730	1,19,44,91	32	75,81	3	55,45
25	12	1,30,89	6	2,44	1	9,50
50	24	41,70	4	90	1	3,43
75	1	68,58	..	....	..	....
100	232	5,12,79	412	1,39,98	30	50,99
250	2	1,23	3	16	..	....
500	..	....	2	13	5	2,72
1000	2	5	..	..	61	13,17
5000	..	....	..	..	12	3,61
Others	4	16,49,29	5	88	5	23,53
Total ..	1,015	1,49,13,09	466	2,21,68	118	1,62,40

Table No. 10 shows the industrial pattern* of listed stocks in Bombay stock market.

On the basis of number of companies, the groups of chemicals, dyes and pharmaceuticals, refineries and plastics stand first.

*_Present Position of the Stock Market in India_, 1980, Published by the Stock Exchange, Bombay.

TABLE

INDUSTRIAL PATTERN OF

As on

Industry	No. of Companies	No of stock issues listed				Paid-up Capital listed (in Crs. Rs.)		
		Total	Equity	Preference	Debentures	Equity	Preference	Total
Banks ..	3	3	3	....	....	7.42	....	7.42
Insurance ..	....	....	....	....	....	....	....	....
Investment and finance	,43	69	41	10	18	54.75	2.95	57.70
Trading ..	9	11	9	1	1	14.83	0.50	15.33
Electricity ..	11	36	11	9	16	29·95	5.10	35.05
Transport ..	14	18	14	4	....	60.90	1.17	62.07
Coal Mining ..	1	2	1	1	....	0.65	0.10	0.75
Other Mining ..	2	5	3	2	....	1.13	0.07	1.20
Cement ..	14	27	15	12	....	58.99	3.46	62.45
Potteries, tiles ..	16	26	19	7	....	14.13	0.66	14.79
Paper and Hardboards	61	117	80	34	3	123.83	10.15	133.98
Cotton textiles ..	64	127	68	47	12	116.34	10·04	126.38
Jute textiles ..	2	4	3	1	....	4.96	0.33	5.29
Synthetic Fibres, wool	33	63	37	19	7	120.20	13.18	133.38
Electrical equipment	70	112	76	33	3	91.26	5.79	97.05
Iron and Steel ..	1	5	1	3	1	51.44	16.40	67.84
Aluminium ..	3	8	3	3	2	44.24	6.43	50.67
Metals and Products	131	234	143	78	13	142.34	13.63	155.97
Transport equipment	26	53	27	19	7	102.76	6.71	109.47
General Machinery	48	86	54	26	6	65.34	4.91	70.25
General Engineering	57	86	62	17	7	70.30	4.12	74.42
Chemicals Pharmaceuticals.	121	193	133	51	9	396.78	24.37	421.15
Sugar and Breweries	33	58	34	23	1	34.27	4.85	39.12
Food Products ..	29	52	35	11	6	30.32	1.72	32.04
Tea Plantations ..	13	14	14	....	....	31.49	....	31.49
Other Plantations	7	12	7	5	....	2.10	0.48	2.58
Tyres and Rubber Products	15	27	17	8	2	42.07	2.48	44.55
Miscellaneous ...	108	161	115	42	4	162.84	11.09	173.93
Total ...	935	1609	1025	466	118	1875.63	150.69	2026.32

No. 10

LISTED STOCKS AT BOMBAY

31st December 1979

Debentures (in Crs. Rs.)	Total capital employed (in Crs. Rs.)	Market value of capital (in Crs. Rs.)				Average per company (in Lakhs Rs.)		
		Equity	Preference	Debentures	Total	Share Capital	Total Capital	Market Value
....	7.42	18.39	....	....	18.39	247	247	618
....	....	....	....	....	....	....	....	..
198.88	256.58	56.15	1.58	194.38	252.11	134	596	452
1.00	16.33	28.16	0.23	1.00	29.39	170	181	326
27.24	62.29	29.81	3.90	24.22	57.93	318	566	526
....	62.07	68.59	1.17	....	69.76	443	443	498
....	0.75	0.03	0.10	....	0.13	75	75	13
....	1.20	0.97	0.07	....	1.04	60	60	52
....	62.45	80.64	2.55	....	83.19	446	446	594
....	14.79	13.86	0.53	....	14.39	92	92	89
3.40	137.38	183.45	7.95	2.84	194.24	219	225	318
14.17	140.55	263.22	7.55	13.58	284.35	197	219	444
....	5.29	3.94	0.30	....	4.24	264	264	211
14.90	148.28	423.52	11.37	15.94	450.83	404	449	1,366
3.27	100.32	188.38	5.01	3.49	196.88	136	143	231
15.00	82.84	63.10	8.91	12.08	84.09	5784	8284	8408
12.00	62.67	94.54	5.71	12.00	112.25	1689	2089	3741
19.79	175.76	172.53	12.91	19.41	204.85	119	134	156
25.42	134.89	230.07	5.79	22.36	258.22	421	518	993
5.75	76.00	120.86	4.10	5.48	130.44	146	158	271
13.42	87.84	143.64	4.24	13.22	161.10	130	154	282
6.15	427.30	848.79	22.72	5.61	877.12	348	353	724
0.75	39.87	27.98	4.20	0.54	32.72	118	120	99
7.20	39.24	66.29	1.30	6.41	74.00	110	135	255
....	31.49	47.24	....	....	47.24	242	242	353
....	2.58	3.58	0.22	....	3.80	36	36	54
3.55	48.10	54.20	2.22	3.17	59.59	297	320	397
21.38	195.31	295.33	9.74	21.38	326.45	161	180	302
393.27	2419.59	3527.26	124.37	377.11	4028.74	217	259	431

The Bombay Stock Exchange has contributed in the aggregate more than Rs. 4 crores to the State exchequer during the period 1947 to 1969. The average annual revenue collected from the stock exchange by the State every year from 1947 to 1969 has exceeded Rs. 17½ lakhs.

The mean of the index numbers of the daily average turnover, computed on the basis of the number of working days in each clearing according to the number of shares was about 97 in 1965, 92 in 1966, 82 in 1967, 63 in 1968 and 71 in 1969.

The annual volume of turnover by value was the highest in 1951. The plan period of 1961-65 witnessed a hectic market and the most active period.

Clearing Houses: The enormous task of settling the thousands of transactions entered into on the stock exchange during each settlement period is done through the 'clearing house'. It works on the same principles as the bankers' clearing house. The actual physical turnover of cash and movement of shares are reduced to the minimum by the elimination of all the intermediaries in the numerous transaction during the given accounting period. The parties to the contract deal with the clearing house to which they submit a balance sheet of their purchases and sales over the account period and settle only the net balances of securities and money. This system is very convenient to the members, and covers a large volume of transactions. The actual technique of clearance is the most complex part of stock exchange operations, involving the statement of all individual transactions and their quotations in terms of settlement prices and the make up prices. Yet the physical labour involved in a multiplicity of deliveries is reduced to the minimum by means of clearing.

On the Bombay Stock Exchange, there are certain procedures laid down for clearance. The last day of business, which is usually a Friday, is the day on which all transactions are either to be closed or carried forward to the next settlement. The *badlas* are arranged on this day. The new account commences on the following Monday. The last day for delivery on which all securities are to be delivered to the clearing house is usually the fourth or fifth day following the *badla* day. The pay-in-day which is the eighth or the nineth day following the *badla* day is the day on which all cheques are to be deposited in the clearing house, together with a list of the payments due or receivable. The pay-out-day is the day on which cheques are issued by the clearing house in favour of the members having credit balances; this is generally the second or third day following the pay-in-day.

Government Securities Market: This market differs from the share market on the basis of absence of risk and uncertainty as regards dividends or the capital. It is popularly known as the gilt-edged market. Further the investors are mainly institutions rather than individuals, the commercial

banks, the L.I.C., the State Bank of India and the Provident Fund authorities are the important holders of government securities. Reserve Bank of India is an important holder as well as the predominant operator on the market through its open market operations, issuing the new floats, it takes up a proportion of the loans. Stock-brokers are important in the buying and selling of government securities on the market. The transactions are large in magnitude and the bulk of the business is handled by a relatively small number of brokers. There are other large number of small brokers but their total business is very small. The bulk of business is carried out by the Reserve Bank of India's brokers who number 30 in all the three important centres: Bombay, Calcutta and Madras.

The Government securities market is not an auction market like the share market. The average size of the transactions is large so that each purchase and sale has to be negotiated, though there is keen competition among the brokers and the jobbers. In a way there is an element of compulsion, as institutions are compelled to invest a part of their assets in government securities, and the operations of the Reserve Bank of India dominate the functioning of the market. The Reserve Bank of India operates in all securities, short and long. This makes its policy broad and flexible. Lately, the State Government securities are also entering the market as their number has been fast rising.

As in the share market, brokers play an important role in the buying and selling of government securities. There are some brokers who specialise in government securities but since transactions in government securities are of large dimensions, the bulk of the business in these securities is handled by a few brokers. Yet the market is specialised and competition is strong. The specialised financing institutions do a good job of bargain hunting and generally obtain 'fine' quotations. The Reserve Bank of India, of course, acquires a large stock from the new issues of Government and uses them for its open market operations.

The objectives of its open market operations varied from time to time based on the existing economic situation and the trends in the money and capital markets. Yet by and large, these operations have not assumed the role of a full-fledged instrument of credit policy. They have been used in India more to assist the government in its borrowing operations and to maintain orderly conditions on the market, than for influencing the cost and availability of credit. The objectives of what is called grooming the market, such as acquiring securities nearing maturity to facilitate redemption and to make available on tap, a variety of loans to broaden the gilt-edged market have been more prominent in the conduct of the open market operations. On the whole, these operations have been consistent with the monetary policy of the Reserve Bank and avoided

violent fluctuations in the gilt-edged prices. They have enabled the Reserve Bank to keep in close touch with the market and fill the gaps in demand and supply with a view to broaden the market.

The Reserve Bank's operations on the market are largely conducted in Bombay, though some transactions do take place in Calcutta and Madras. The Reserve Bank has no direct representative on the market but functions through the approved brokers. The Bank does not publish either the particulars about the various loans it is prepared to buy or sell or the rates of it's dealing. The brokers are verbally informed of the changes in this respect. The rates of sales and purchases are fixed in the light of the prevailing conditions in the market. Sometimes the mere announcement of the rates is sufficient to produce the desired effect on the market. Generally the Bank is an outright buyer in near-dated securities and an outright seller in new issues and long-dated loans. In addition, the Bank undertakes switches which are generally from shorter dated to longer dated loans. The policy of switches is intended to help the shifting preferences of the market and to establish and maintain a harmonious pattern of yields.

BULLION TRADING

India has been traditionally known for her bullion trading. In Bombay, the organisation of the bullion trade evolved out of a few small shops on the Sheikh Memon Street where trading was done under the open skies. Gold and Silver were dealt in by four merchants who imported bullion and distributed all over the country through shroffs and bankers. All these transactions were based on customs and largely carried out verbally due to the high standard of integrity observed by the business-men in the forward market. The trading was on the basis of monthly settlements and fortnightly clearings, and the trade was a very flourishing one.

During the First World War period, the volume of business increased rapidly and there were heavy fluctuations on the bullion market. There was an acute shortage of silver between 1917 and 1920. From 1917, the Government took over all the imports of gold and silver and released them ih the market. Attempts were made to organise the trade and to evolve rules for the settlement of business. Seven leading silver merchants in Bombay took the first step to put the bullion trade on an organised scale by establishing the Silver Merchants' Association, a loosely-knit organisation. It formulated the rules for settlement of business and the working of the market. Bazar Merchants' Association was formed in 1920, but was replaced by Bombay Bullion Exchange Limited in 1923. After the war the trade in gold and silver expanded rapidly and Bombay, being the nearest eastern port for the West, was the chief centre for the marketing of bullion both for the internal and external trade.The bullion

prices started rising after the Second World War and the same trend is still continuing.

The Bombay Bullion Exchange Ltd. is the largest exchange in India. The Exchange was a public limited company with a share capital of Rs. 102 lakhs divided into 200 shares of Rs. 5,000 each. These shares were held by about 138 persons when the Exchange went into voluntary liquidation in 1947. The board consisted of 12 directors elected by the share-holders, one-third of them retiring by rotation. Besides the share-holders, there were trading members who had no share in management but were permitted to enjoy all the trading facilities. Trading members were of two categories, ordinary members who paid an annual subscription of Rs. 251 and associate members who paid Rs. 151 per year. There was a committee elected by the shareholders known as the merchant's committee and this committee with the board of directors managed the business on the exchange. The board of directors had special powers, pertaining to admission fee, the tenders etc. The merchants' committee was mainly an advisory organisation. Most of the prominent bullion merchants of Bombay were enrolled as members. The exchange had a building of it's own with trading ring, offices, safe deposit vaults and other facilities.

Clearing House.—The exchange established the clearing house in 1936 for the settlement of forward business. This facilitated the issuing of delivery orders which had to be passed on from party to party and also avoided the risk of making payment in cash. It also provided safeguards against frauds and false representation by members for collection of dues.

The exchange also framed elaborate rules and bye-laws to regulate forward trading in bullion. These have established certain sound practices and customs. The outstanding transactions known as *badlas* in case of cornering, carried a compensation of Rs. 3·50 per unit of 100 *tolas* in case of silver, which lessened the temptation of speculation and cornering of silver or gold. The trade practices and precedents, the ruling and decisions of the board, and the judgements and orders of the courts of law made the rules of governance of the market more perfect.

The outbreak of the Second World War in September 1939, led to a complete disorganisation of the market and violent fluctuations in prices. The price of gold shot up from Rs. 34 per *tola* in March 1938 to Rs. 44 in May 1940 and Rs. 90 in May 1943. There was a ban imposed on the import of bullion and the exports were brought under the control of the Reserve Bank of India. An attempt to control the forward trading in bullion was made in 1943, when under the Defence of India Rule 90C, the Government prohibited all forward contracts which did not provide for delivery of bullion within a specified period. These restrictions were removed

after the war, in January 1946 and forward trading in bullion was again freely resumed.

By 1947, apart from the Bombay Bullion Exchange Limited, the following two more associations were conducting forward trading in bullion, though a large part of the trade still was conducted by the Bombay Bullion Exchange. (1) Marwari Chamber of commerce:—This organisation was mainly interested in the trading of oil-seeds and wheat, but as forward trading in these commodities was prohibited during the war, the Chamber started trading in bullion. It had 203 ordinary members, 77 associates and 3 special associates. The membership fee was Rs. 75 for ordinary, Rs. 51 for associate and Rs. 15 for special associate members. The board consisted of 25 directors elected by panels of shroffs, commission agents and brokers. The chamber also maintained a clearing house. (2) East India Chamber of commerce:—It was incorporated in 1934 and since 1944, it has been doing forward trading in bullion in units smaller than permitted by the Bombay Bullion Exchange Limited. It was therefore known as 'Tukada Bazar'. There were about 485 members. The board of directors consisted of not less than 15 and not more than 21 directors. Clearings were weekly and units of transactions were 25 *tolas* for gold and 700 for silver. There was a trading hall but no separate clearing house.

In May 1947, the Government of Bombay appointed a cabinet committee to examine the various problems relating to forward trading in bullion. On the recommendations of the committee the Bombay Forward Contracts Act, 1947 was enacted. As a result forward bullion contracts entered outside the recognised association were declared illegal. The committee also suggested a single association for conducting forward trading in bullion. The Bombay Bullion Exchange was not very willing to reconstitute itself on the lines suggested by the committee for the absorption of the smaller units. So in June 1948, a small committee consisting of the representatives of the Bombay Bullion Exchange Limited, the Marwari Chamber of Commerce and the East India Chamber of Commerce was constituted. The committee submitted a draft memorandum to the Government of Bombay, which was approved by the Government. On the basis of this memorandum and the suggested articles of the association, the Bombay Bullion Association Ltd. was incorporated on 17th September 1948 as public limited company under the Indian Companies Act. The Bombay Bullion Exchange went into voluntary liquidation and its assets were taken over by the new Association. The Government of Bombay and later the Government of Maharashtra supervised the regulation and control of forward trading in bullion by the Bombay Bullion Association from 1947 to 1960 when the Government of India took over the regulation of this trade. The Government of India on the recommendations of the Forward Markets Commission recognised the

Bombay Bullion Association Limited on 26th October 1960, and the Forward Contracts Regulation Act, 1952 was made applicable to the association, under the supervision of the Forward Markets Commission. The Association, with it's highly developed organisation carried out it's policies of regulation and control smoothly. However certain problems had developed in this trade.

For the past many years, a steady upward trend has been persisting in bullion prices, created by the scarcity of supplies and the rising demand created by inflationary trend. The bulls have therefore dominated the market. Some strong speculators have been resorting to the cornering of stocks; the bearers by their behaviour have aggravated the situation. As a result, there have been frequent crises on the bullion market. The authorities of the Association who tried to resolve the crisis did not get sufficient co-operation from the members. The bullion market could be manipulated for the personal ends of a few speculators to the detriment of the bullion trade as a whole and the consumers at large. The association has been endeavouring to make the market run smoothly and steer it out of difficulties with the co-operation of sober traders and the Government.

Forward trading in bullion is quite widespread. It means a contract to buy or sell a specified quantity and quality of bullion at an agreed price at a future date. The prices are determined by the expectations of the buyers and sellers which in turn are influenced by multiple internal and external factors. *Badla* transactions which mean carrying over the outstanding transactions from one settlement to the next settlement are common. When the price quoted in the current settlement is lower than for the next settlement it is described as *sidha badla*, if it is higher it is known as *ulta badla*. These *badlas* attract graded automatic margins of steep progression payable by traders at the rates prescribed, depending on the magnitude of fluctuations and *badla* differences. If there are idle funds available, bankers and financers who want to earn interest enter the market and provide the funds for *badla* transactions and these transactions are described as *Vyaj-badla* as interest charges have to be paid on these funds. The return on these funds is 9 to 12 per cent.

There are certain types of contracts entered into by the traders, *teji-mundi, fatak, jots, gali,* which are considered to be illegal. Since the Bombay Forward Contracts Control Act, these forward transactions are controlled by the Government and certain regulatory provisions are included in the Act. The unit of forward transactions in gold was 250 *tolas* and in silver 1 bar weighing 2,800 *tolas*. They are effected every month and generally there are twelve settlements during the year (except when there

is an additional month, *Adhik Mas*) and are settled on the 15th day *i.e. Pournima* of the month. The board of the Association can fix the days for settlement. The rules about the delivery, purchase price, tenderable bullion and auction are all framed by the board. The forward trading is under the supervision of the Forward Markets Commission. The Commission examined all aspects of the question of forward trading in bullion in the country, and suggested it's continuation on the basis of it's large volume and the long tradition in this business. It suggested that the trading should be limited to a few cities in the country including Bombay where both silver and gold forward trading should continue. So the Bombay Bullion Association continued functioning under the supervision of the Commission. There are the bye-laws of the Association regulating the business hours of trading unit, contract period, settlement of business, etc. The functionaries on the forward market are many. The Choksies are the wholesale dealers in gold and silver. They were the importers earlier and now also hold large stocks of bullion. Shroffs or the indigenous bankers act as middlemen between the Choksies and the upcountry dealers. There are the speculators who deal on their own, and the brokers who enter the market on behalf of their clients. The jobbers buy and sell at narrow prices and square up to their outstanding business at the end of the day. They minimise the risk on the market and import liquidity. Jewellers and *jari* makers are also large purchasers of bullion for their professional work.

Spot Trading: The production of gold and silver in India is relatively small. Yet the demand for bullion is very large. Ready transactions are effected over the counter against cash payment and the trading is done either directly by the public or through the dealers. Standard marked bars (called *lagdies*) of standard fineness are available in the market. The trade is based on the confidence that the clients have in the seller. The spot market is constituted of Choksies *i.e.* the wholesale dealers, the retail dealers, the goldsmiths, the brokers and the commission agents. The market is well organised, and the prices are widely known. The bullion market is spread all over the country. The largest and the best organised is the Bombay Bullion Market, as Bombay is the chief distributing and entrepot centre for bullion. Bombay also gives the facilities for refining and assaying, and from all over the country the bullion comes here for being melted, refined and cast into commercial sized bars. Distribution of bullion throughout the country is done through Bombay. The vast and prosperous population of Bombay, the large numbers of jewellers, dealers and artisans have made Bombay the centre of this large established trade.

BILL MARKET SCHEME

The absence of a well-developed bill market has been considered to be a serious lacuna in the money market. This limited the scope for short-term investment by the commercial banks.

Sale and repurchase of bills was limited in value. So to popularise the use of bills and develop the bill market, the R.B.I. in January 1952 introduced a bill market scheme under Section 17(*4*)C of the Reserve Bank of India Act. This section enables the R.B.I. to make advances to scheduled banks against security of usance promissory notes or bills drawn or payable in India and maturing within 90 days from the date of advance. Under the bill market scheme the scheduled banks woulp convert the demand promissory notes obtained by them in respect of loans, overdrafts and cash credit granted to them into usance promissory notes maturing within 90 days and to lodge such usance promissory notes with the Reserve Bank of India for refinance. The minimum limit for an advance which a bank could take from the Reserve Bank of India at any one time under the scheme was in the first instance Rs. 25 lakhs, and each individual bill tendered by the scheduled banks to the Reserve Bank of India for advances would not be less than Rs. 1 lakh. During the first year of the operation of the scheme, it was confined to the scheduled banks with deposits of Rs. 10 crores or more on 31st December 1951.

In 1953, the scheme was extended to scheduled banks having deposits of Rs. 5 crores or more provided they were in possession of a licence granted by Reserve Bank of India. The advances to banks were to be made at 0·5 per cent below the bank rate, and this was in order to popularise the scheme. A further inducement was that half the cost of the stamp duty incurred in converting demand bills into time bills was to be borne by the Reserve Bank of India. The objective of the scheme was to popularise the use of bills on the money market. Advances of the Reserve Bank of India to scheduled banks under the bill market scheme increased from Rs. 81 crores in 1952 to Rs. 3,23 crores in 1965-66.

In 1954, the scheme was extended to all licensed scheduled banks and the minimum amount which could be borrowed was reduced to Rs. 10 lakhs, and the minimum amount of each individual bill tendered as security was lowered from Rs. 1 lakh to Rs. 50,000. Thus the advances rose from Rs. 66 crores to Rs. 1,48 crores. By 1956, with the increasing use of the scheme, the R.B.I. removed the inducements of bearing cost of the stamp duty and the lower rate of interest. The rate of interest charged was 3·5 per cent. The Reserve Bank of India reserved the

right to vary the rate of interest charged at its descretion. The effective rate of interest was 4 per cent and this was the common rate for all the advances to the banks from the Reserve Bank of India. When the bank rate was raised to 4 per cent in 1957, the stamp duty on usance bills was reduced to 50 ps. per 100 rupees and the minimum amount which can be borrowed was reduced to Rs.5 lakhs. Even then the borrowing under the scheme was costlier than that against the government securities.

In 1958, for restraining the reliance of the banks on Reserve Bank of India under the scheme, for the busy season, the credit limit was reduced to 50 per cent of the previous year's level and the period of the availability upto the end of May 1960 instead of for the whole year. In October 1958, the scheme on an experimental basis for one year was extended to export bills, the minimum amount of advance being Rs. 22 lakhs. Reserve Bank of India agreed to bear half the cost of stamp duty on the usance promissory notes and the interest rate chargeable was 4 per cent. The scheme was liberalised in 1959. The minimum amount that could be borrowed was lowered to Rs. 1 lakh and the Reserve Bank of India further agreed to bear the entire duty on the usance promissory notes lodged with it as security.

In 1960, the penal rates were introduced by the Reserve Bank of India to restrain the credit expansion of the commercial banks. The three tier rate system was introduced in 1951, yet the Reserve Bank of India was liberal in sanctioning limits under the bill market scheme to meet the genuine credit needs of industry and trade. Special larger credit was provided on bills to the sugar and jute mills. Refinancing facilities and additional quotas under the scheme were provided to the banks providing advances to small scale industries and co-operative banks. Similarly for export finance, under the export scheme, advances were given on the individual usance promissory notes. Again on 23rd March 1963, Reserve Bank of India introduced a new scheme *viz.*, 'export bill credit scheme'. The advances under the scheme increased from Rs. 11·8 crores in 1963 to Rs. 26·69 crores in 1964. Thus the bill market scheme did encourage the use of bills which are known as self liquidative instruments on the money market.

With the policy of selective credit liberalisation of the Reserve Bank of India, the bill market scheme was extended to the food procurement and allied activities by Government agencies. The scheme was revived in November 1955. Under this, the banks were eligible for refinance from Reserve Bank of India at the bank rate without limit in respect of supplies, packing credits to exporters and advances to State Governments, their

agencies and Food Corporation of India for procurement, storage and distribution of food-grains. But this amount of refinance was to be taken into account in computing the net liquidity position of the bank which determines the cost of Reserve Bank of India accommodation for all other purposes. Thus the bank's availability for such finance is limited. But the refinance under the bill market scheme against advances to State Governments, their agencies and Food Corporation of India for food procurement, storage and distribution as were in excess of the maximum level of such advances in 1965 were excluded, and this was to help the State in its food policies and to enable the banks to satisfy the seasonal demand. But the amount of facilities sought by the banks in the busy season of 1966 was small, but this was partly due to the small demand for credit in 1966 and so the smaller reliance of the banks on Reserve Bank of India's advances. Banks were also afraid to borrow more under the scheme because of its impact on their net liquidity position. Yet the scheme has become a permanent feature of the credit system in the country and has given some elasticity to the money market. The advances under the scheme have been rising and there is a hopeful future for the bill market. The commercial banks can raise the necessary resources for meeting the mortgaging genuine needs of trade and industry without the need for their government securities. This provides the scope to the banks to extend their activities to the rural areas and the small customer in the urban areas.

The bill market scheme was intended mainly for the development of the market and an increase in the volume of bills. But the new techniques of overdraft adopted by the commercial banks and the decline in the use of bills in financing trade have reduced the need for a wide bill market, which was traditionally an important part of the money market in Western countries. With the nationalisation of commercial banks, the supply of credit by the commercial banks tends to be rather productivity-oriented than security-based and also limits the scope for bills and the bill market in India.

JOINT-STOCK COMPANIES

The modern joint-stock companies have evolved from purely proprietary or partnership type of concerns of the past. The joint-stock company as it exists today is a more stable and suitable form of business organisation through which instability and risk involved in the business of a single individual or a partnership concern can be reduced. Under joint-stock company, a number of merchants come together and share the risk jointly.

The joint-stock companies were for the first time registered according to the Act XLIII of 1850 and afterwards they were regulated by the Act VI of 1882.

Since 1876, the number of companies in Bombay and their capital have steadily increased in consequence of the natural expansion of the city and its trade interests. The same is revealed from the data given in the following statement :—

Year	No. of companies	Nominal capital (Rs. in lakhs)	Paid-up capital (Rs. in lakhs)	Average number of companies registered annually
1875-76	75	859	536	....
1885-86	147	1028	802	14
1895-96	191	1322	880	14
1905-06	241	1889	1303	14

The number of registered companies further increased to 308 during 1908-09. Out of 308 companies, 169 were mills and presses, 97 trading companies, 18 banking and insurance companies, 8 land and building companies, 7 mining and quarrying companies, 3 sugar manufacturing concerns, 2 ice manufacturing concerns, one tea and planting company and three others. The nominal capital of all the 308 companies together amounted to about Rs. 29 crores, whereas the total paid-up capital amounted to Rs. 19 crores. Besides, at the close of 1908-09 the number of companies limited by guarantee in Bombay city was eight, of which six were insurance companies.

In the absence of records regarding the companies in Bombay city from 1908-09 upto 1957-58, it is difficult to trace the gradual evolution of joint-stock companies for that period. The year 1958-59 recorded a further increase in the number of joint-stock companiesin Greater Bombay, and the same stood at 4,156. Of this, the highest in number were the companies engaged in trade and finance as the same stood at 1,679 with the total authorised capital of Rs. 277 crores and paid-up capital of Rs. 97 crores. Of the remaining number of 2,477 joint-stock companies, 890 were the companies engaged in the processing and manufacture of metals, chemicals and products thereof, 428 in the processing and manufacture of foodstuffs, textiles and leather products;

and 502 in processing and manufacture not classified elsewhere. Besides in 1958-59, there were 275 companies engaged in personal and other services; 117 in construction and utility services; 90 in community and business services; 71 dealing in transport communication and storage; 64 in mining and quarrying ; and 40 in agriculture and allied activities.

The joint-stock companies are divided into two kinds *viz.*, the private limited companies and the public limited companies. The Indian Companies Act of 1956 describes a private company as one which restricts the right to transfer its shares, if any, limits the number of its members to fifty and prohibits any invitation to the public to subscribe for any shares or debentures of the company. The Act further lays down that no company, association or partnership consisting of more than 20 persons shall be formed for the purpose of carrying on any other business that has for its object the acquisition of gain by the company, association or partnership, or by the individual members thereof, unless it is registered as a company. Thus, registration is made compulsory for these companies.

The number of joint-stock companies in Greater Bombay in 1967, 1971 and 1976 is shown below :—

Year	Companies limited by shares		Companies limited by guarantee and associations not for profit		Total
	Public	Private	Public	Private	
1967 ..	892	4133	164	12	5201
1971 ..	908	5408	183	16	6515
1976 ..	1206	7623	202	32	9063

During 1975-76, Greater Bombay accounted for about 88 per cent of the total joint-stock companies in the State. On 31st March 1977, there were in all, 9,588 joint-stock companies registered in Greater Bombay and the same accounted for 88 per cent of the total of 10,895 in the State. As against this, the number of registered joint-stock companies in India stood at 48,057 and the number of companies in Greater Bombay accounted for about 20 per cent of the total in India. Out of 9,588 registered joint-stock companies in Greater Bombay, 1,258 were public limited companies, 8,085 were private limited companies, and 245 were grouped as associations not for profit and guarantee companies.

The following statement gives the distribution of joint-stock companies in Greater Bombay as they existed on 31st March 1977:—

District/State	Government companies		Non-Government companies		Total		Associations not for profit and guarantee companies
	Public	Private	Public	Private	Public	Private	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Greater Bombay	15	23	1243	8062	1258	8085	245
Maharashtra State	23	34	1450	9066	1473	9100	322

On 31st March 1983, there were in all 17887 Joint-Stock companies registered in Greater Bombay, of which 16617 were companies limited by shares and 270 were companies limited by guarantee and not for profit.

SECTION II—TRADE AND COMMERCE

Trade Routes

Bombay figured in the writings of ancient travellers as one of the ports of Thane coast, which once played a leading role in the foreign commerce of Western India. A steady increase in the external commerce of Bombay was especially noticed since the beginning of the nineteenth century. The opening of the Suez Canal in 1869 effected a complete revolution in the carrying trade of Bombay which had upto that date been restricted by a lengthy voyage round the Cape of Good Hope. With the improvement of communications and means of conveyance as also concessions given by the then Government, Bombay gradually developed into the chief centre of commerce both internal and external. Bombay's status as the 'Gateway of India' even today remains unchallenged.

Now, the Bombay Port Trust, the domestic and the international air-port, Central and Western railway routes and four national highways have provided Bombay with good communication infra-structure connecting it with all the important places within the country. Principally by reason of its present position, Bombay plays a vital role as the centre of entrepot trade of the country.

The internal or inter-regional and international trade routes emanating from Bombay which are responsible for developing Bombay into one of the biggest business and trade centres can be classified according to different modes of transport used.

In 1909,* the internal or inter-regional trade routes connecting Bombay with other States in India consisted of road routes, rail routes and coastal routes. Bombay was connected by rail-routes of the Great Indian Peninsula Company and Bombay, Baroda and Central India Railway Company. The Great Indian Peninsula Railway connected Bombay with south-eastern and north-eastern portions of India. Whereas the Bombay, Baroda and Central India Railway connected Bombay with Gujarat, Rajputana, Central India, United Provinces and Punjab.

The bulk of trade was in cotton and grain brought from the Deccan and Central Provinces by the G.I.P. Railway and from Gujarat by the Bombay,Baroda and Central India Railway.

The inter-coastal trade routes connected Bombay port with the ports of Calcutta, Madras, Cochin, Karachi, Kandla, Porbundar, Janjira, Goa, etc. The chief items of coastal imports were raw cotton, rice, wheat, sugar, raw wool, opium, spices; whereas the chief items of coastal exports were salt, cotton piecegoods, twist cotton yarn, metals, raw silk, sugar, etc.

The trunk routes of the Central and Western railways originating from Bombay connect her with the markets all over India. Bombay is the focal point of rail routes radiating in the northern, eastern and southern directions.

The three rail routes *viz.*, Bombay-Pune-Bangalore-Guntakal-Madras; Bombay-Bhusawal-Nagpur-Howrah; and Bombay-Bhusawal-Itarsi-Satna-Allahabad-Kanpur on the Central railway have afforded a good network of communications to important markets in the State of Maharashtra as well as to eastern, southern and central India.

The two railroutes on the Western railway *viz.*, Bombay-Baroda-Mathura-Delhi, the same reaching upto Jammu Tawi touching Saharanpur-Ludhiana-Jullunder; and Bombay-Baroda-Ahmedabad, have made direct transport facility available to entire North India as well as to Gujarat and Rajasthan.

The principal commodities arriving in Bombay from Madras-Guntakal-Bangalore-Pune-Bombay rail-route of Central railway are oil-cake from Davangere and Raichur; chemicals from Amaruath; tea from Cochin and paper from Dandeli. Among the other principal commodities arriving in Bombay from other rail routes including iron and steel products from Bhilai, Ganour, Bhatinda, Indore; oil-cake from Amritsar in Punjab and Akola, Dhue, Badnera and Tumsar in Maharashtra; paper from Ballarshah in Maharashtra and from Jagdhari; cotton textiles from Delhi, Ahmedabad; ferro-manganese from Tumsar and artware from Moradabad and Jaipur.

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* *The Gazetteer of Bombay City and Island, Vol. I, 1909.*

Besides these rail routes, Bombay Port Trust railway also undertakes loading and unloading of foreign traffic carried through Bombay port.

The Bombay Port Trust commissioned with effect from 1st January 1915, owns and operates its own railway which is connected to the broad gauge main lines of the Central and Western Railways at its intercharge railway yard at Wadala. The Railway runs for about 11 km. of straight route between Ballard Pier and Wadala, and has an extensive network of tracks of about 25 kilometres. It serves the docks as well as the important installations and factories on the Port Trust estates. This railway itself handles over 4 million tonnes of traffic annually. The same represents about 60 per cent of total rail-borne goods traffic from Bombay city.

Bombay is also served by four important National Highways. These four National Highways starting from Bombay are:—(1) Bombay-Agra Road, (2) Bombay-Ahmedabad Road; (3) Bombay-Pune-Bangalore Road; and (4) Bombay-Goa Road. The Bombay-Agra National Highway is the most important artery of traffic to the northern and eastern Maharashtra as well as to Upper India. The road further reaches Delhi and Amritsar. The principal commodities arriving in Bombay from this route consist of vegetables from Nashik; fruits from Jalgaon; readymade garments from Bhatinda; engineering goods from Ludhiana and Jullunder; and artware and handicrafts from Amritsar, etc. The Bombay-Ahmedabad-Jaipur national highway is mostly used for transportation of raw cotton from Ganganagar; cotton textiles from Ahmedabad, Surat, Surendranagar and Sidhapur; textile yarn from Jamnagar; and non-electrical machinery from Rajkot. The goods transport on Bombay-Pune-Bangalore-Madras road consists of cotton textiles from Madras, Mysore, Bangalore and Gokak; engineering goods from Bangalore and Pune; textile yarn from Gokak ; iron and steel products from Khopoli, etc. The Bombay-Goa Road is used for the transport of cashewnuts, coconuts, jackfruits, and mangoes from Konkan and Goa.

Bombay is also connected with all minor and major ports on the Western coast. They are Janjira, Shriwardhan, Harnai, Dabhol, Jaigad Ratnagiri, Vijaydurg, Malvan and Panaji on Konkan coast; Karwar, Mangalore, Calicut, Cochin and Tuticorin on West coast and Madras, and Calcutta on East coast.

The trunk airroutes originating from Bombay connect Bombay with almost all the important air-ports in the country such as Hyderabad, Cochin, Bangalore, Calcutta, Madras, Delhi, etc. Principal commodities arriving in Bombay through these airroutes consist of costly commodities, such as art silk goods, woollen and silk carpets, fur goods, readymade garments, jewellery, perfumes, essential oils, etc.

The international trade carried through Bombay Port constitutes almost two-third of the total foreign trade of Bombay. The waterways emanating from Bombay port connect Bombay with adjacent countries such as Burmah, Sri Lanka, Pakistan and Bangla Desh and also to the African countries, Australia, New Zealand, Canada, Far Eastern countries, Japan, United Kingdom, United States of America, U.S.S.R., West Germany and many other American, Asian and European countries.

A large variety of commodities arrive in Bombay port from the above mentioned countries. Some among the imported commodities are metal and metal products, motorvehicles, their parts and accessories, foodgrains, synthetic fibres, fertilisers, etc.

CHANGES IN THE PATTERN AND ORGANISATION OF TRADE

With the changes in the socio-economic structure of Bombay, the pattern and organisation of trade has undergone many striking changes. Under the Portuguese rule the trade of Bombay was infinitesimal and was confined only to the sale of dried fish and coconuts to neighbouring coastal towns. From 1664 to 1688 Bombay gradually developed into the chief centre of English commerce with Western India. In 1757 Bombay was described as the grand store-house of all Arabian and Persian commerce. By the third decade of the 18th century, Bombay's commerce was in the most flourishing condition. During the first half of the nineteenth century, the export trade of Bombay was confined chiefly to Asian countries, and United Kingdom and after 1870 to other European countries. However, the internal trade had not received the same attention as the foreign trade at the hands of British Government. For several years after Bombay had passed into the possession of the East India Company, the internal trade of the Island of Bombay was hampered by lack of capital, external warfare, and epidemic diseases. Only since 1870, the retail trade, commission and agency business and the mill-industry have greatly developed. In the middle of eighteenth century, the traders except grain traders were free from government interference and every encouragement was given to fishermen, vegetable growers etc., to bring their produce to Bombay market.

The variegated changes which have occurred in the location, pattern, organization and composition of trade in Bombay since the end of nineteenth century may be the composite result of the changes in the status and composition of demand and supply of commodities, improved means of transport, technological advance, growth of banking, etc.

With the spectacular improvement in the means of transport and communications, trade is no longer confined to a limited area or to a limited variety of commodities. The improvements in the means of transport such as air-ways, had led to the opening of the new internal

and external traderoutes. These increasing trade routes have increased the accessibility of Bombay with all big and small markets spread in the distant corners of the country as also with the foreign markets. As Bombay lies well away from agricultural regions, almost all the foodstuff consumed by Bombay populace is brought in Bombay from these regions. Before the opening of these various traderoutes, the external trade was mostly carried by the Bombay port; while the internal trade was carried by the rail routes of the Great Indian Peninsula Railway and Bombay, Baroda and Central India Railway and also by the inland waterways. Even then the trade was limited to specific commodities and with specific destinations but the process used to be a time consuming one.

Now, there has been a sizeable increase in the volume of trade. In keeping with this increase, the trade has become more and more organized. There has been vital changes in the organization of trade. The system of different categories of traders undertaking different trade activities and representing their trade problems through one or different trade organizations or associations, though very old, has recently gathered great momentum in Bombay. During the nineteenth century, only nine trade organizations were established in Bombay, now, there is a large number of trade associations representing almost all trading commodities.

Besides, there are export promotion councils and exporters' associations organised for undertaking various measures so as to give impetus to the exports of specific commodities. The Bombay regional office of the Trade Development Authority set up in 1970 under the control of Ministry of Commerce also helps to expand export activities,. Consumers on the other hand who play a vital role in the trade activities have also started organizing themselves to solve their own problems through societies such as Consumers' Guidance Society, Consumers' Association of India, etc.

The State Trading Corporation, with its branch office at Bombay and the Maharashtra State Co-operative Marketing Federation Limited also play a pivotal role in the trading activities in the State. The former generally organises and undertakes trading activities with other State trading branches and foreign countries in commodities approved by the Central Government; while the latter undertakes purchase and distribution of mineral oils, sale of potatoes, onions, fertilisers, etc. Bombay is also an important centre of forward trading in oils and oilseeds such as castorseed, groundnut, cottonseed, linseed, groundnut oil, groundnut kernels, pepper and cotton.

EXTENT OF EMPLOYMENT

Greater Bombay as it stands today is the financial and commercial capital of the country and the headquarters of several all India financial

institutions and some of the largest industrial houses in the country. Bombay as a port helped the East India Company to a great extent in developing the overseas trade with India. After transferring its head-quarters from Surat to Bombay, the Company left nothing unturned to encourage immigration, weavers and artisans from Surat and other places were offered well-paid employment, land on easy terms and financial assistance in developing their business.

Now, Bombay's accessibility to every State in the country and with foreign countries by land, sea and air has proved a potential factor in promoting industrial and commercial functions in Bombay. The erstwhile fishing village was thus destined to be the premier port of India, as it offered all the natural pre-requisites of a harbour to be able to serve the entire Western seaboard of over one thousand miles.

With the opening of new trade routes, of Greater Bombay attracted more and more people seeking employment in one or the other avenue of trade and commerce.

Trade and commerce are the important sectors of the economy from the point of view of employment also. They afford employment to a larger number of people. Having established its claim as a prominent industrial and business centre, Bombay attracts entrepreneurs from all parts of India for establishing industrial and commercial enterprises.

According to the census returns of 1901, more than one-tenth of the total urban population was engaged in trade of one kind or another.

The number of persons engaged in trade and commercial activities of Bombay has shown a rapid increase since 1901. But due to the absence of a common method of presenting occupational data in decennial census returns, a comprehensive picture of the growth of employment in trade and commerce and the occupation-wise change in the employment pattern cannot be attempted. However, the fact of increasing absorption of man power in trade and commerce can be seen from the increasing percentage of persons engaged in trade and commerce to the total working population in Bombay in the recent decennial census returns. The 1931 Census showed 93,835 or 14 per cent, as earners following trade as the principal occupation against the total of 634,895 earners then engaged in different means of livelihood. The 1961 Census recorded the number of persons engaged in trade and commerce as 3,03,817 accounting for 18 per cent of the total working population which stood at 1,686,668.

The following statement throws light on the extent of employment in trade and commerce in 1961 and 1971.

The 1971 Census showed an increase in the number of persons engaged in trade and commerce and the same was enumerated at 491,515 or 22·36 per cent of the total working population of 2,198,098.

EMPLOYMENT IN TRADE AND COMMERCE IN GREATER BOMBAY

Category	1961		
	Persons	Males	Females
Wholesale trade	44,129	42,754	1,375
Retail trade	212,316	198,946	13,370
Miscellaneous	47,372	44,969	2,403
Total ..	303,817	286,669	17,148

Category	1971		
	Persons	Males	Females
Wholesale trade	41,270	39,960	1,310
Retail trade	327,669	313,102	14,567
Miscellaneous	122,576	111,840	10,736
Total ..	491,515	464,902	26,613

Of 368,939 persons engaged in various activities and types of trade handled in Greater Bombay in 1971, 41,270 *i.e.* about 11 per cent were engaged in wholesale trade and 327,669 were engaged in different types of retail trade, the details of which are shown in the table No. 11.

TABLE No. 11

EXTENT OF EMPLOYMENT IN TRADE AND COMMERCE IN GREATER BOMBAY, 1971

	Particulars	Persons	Males	Females
(A)	Wholesale trade in textiles, live animals. beverages and intoxicants.	11,055	10,790	265
(B)	Wholesale trade in fuel, light, chemicals. perfumery, ceramics, glass.	6,150	6,015	135
(C)	Wholesale trade in wood, paper, other fabrics and skin and in edible oils. ..	5,780	5,610	170
(D)	Wholesale trade in all types of machinery, equipments, including transport and electrical equipments.	3,170	3,010	160
(E)	Wholesale trade in miscellaneous manufacturing.	15,115	14,535	580
(F)	Retail trade in food and food articles, beverages, tobacco and intoxicants.	1,13,821	1,05,125	8,696
(G)	Retail trade in textiles	39,160	38,425	735
(H)	Retail trade in fuel and other household utilities and durables.	32,370	31,445	925
(I)	Retail trade in others	77,716	74,220	3,496
(J)	Restaurants and hotels	64,602	63,887	715
(K)	Financing, insurance and Real Estate and Business Services.	1,22,576	1,11,840	10,736

FOREIGN TRADE

The Bombay Customs Zone plays a major role in the foreign trade of the country. During 1965-66, the value of total imports of merchandise in and exports including re-exports from Bombay Customs Zone by sea, air and land amounted to Rs. 58,747 lakhs and Rs.19,838 lakhs, respectively. These accounted for 41·71 per cent of total imports during 1965-66 in the country and 24·62 per cent of exports from all customs zones in the country. The following statement* shows the value of imports and exports to and from the Bombay Customs Zone by sea, air and land :—

(Rs. in lakhs)

Year	Exports (including Reexports)		Imports	
	All Customs Zones	Bombay Customs Zone	All Customs Zones†	Bombay Customs Zone
1965-66 ..	80,564	19,838	1,40,852	58,747
April and May 1966 ..	12,772	3,161	22,714	9,514
June 1966 to March 1967 ..	96,723	19,283	1,67,461	64,940
1967-68 ..	1,19,867	25,331	1,97,428	83,996
1968-69 ..	1,35,787	37,548	1,90,863	76,777
1969-70 ..	1,41,327	39,143	15,820	69,121
1970-71 ..	1,53,516	53,223	1,63,420	72,728
1971-72 ..	1,60,701	49,962	1,82,454	83,819
1972-73 ..	1,97,053	63,781	1,86,744	82,135
1973-74 ..	2,52,340	89,805	2,95,537	1,06,773
1974-75 ..	3,30,414	1,20,277	4,46,810	1,26,445

† Excludes figures in some cases for certain consignments on Government accounts.

As there was a change in the exchange value of the rupee from 6th June 1966, the figures after devaluation period are not comparable with those of the pre-devaluation period. Therefore the statistics of value of foreign trade in 1966-67 is divided into two parts—one relating to April and May 1966 and other to subsequent months from June 1966. The above cited statistics reveals that from 1967-68 to 1973-74, Bombay Customs Zone carried larger amount of imports into the country than the exports including re-exports. As against this trend, Bombay Customs Zone in the year 1974-75 recorded 28·30 per cent of imports into the country and 36·40 per cent of exports including re-exports from the country.

* Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce, Government of India, Calcutta.

Sea-borne Trade : The Port of Bombay is the key-stone of Bombay's prosperity. In the matter of natural facilities for shipping, Bombay is considered as one of the most fortunate of the world's ports.

Under the rule of the Portuguese, the trade of Bombay was confined to the sale of dried fish and coconut in small quantity to the neighbouring coastal towns. With the transfer of the island from the Portuguese to the British in 1665, the future of this port came to be linked with the expansion of the East India Company. Under the East India Company's rule measures for encouragement of trade were forthwith promulgated.

As early as in the first quarter of the eighteenth century, considerable attention was paid to the exportation of raw cotton. There was reduction of customs duty from 6 to 2½ per cent in 1795. The port attracted continuous immigration of native traders from Surat.

The import and export trade of Bombay grew steadily from 1800 onwards, with short-lived aberrations. This is evidenced by the subjoined statement. The passing of Lord Melville's Bill in 1813 threw open the trade of India to the merchants of Liverpool, Glasgow and other great trading centres.

The following statement gives statistics of foreign and coasting trade of Bombay, 1801-02 to 1906-07[1] :—

(Rs. in lakhs)

	Year	Foreign	Coasting	Total
Total value in ..	1801-02	1,76	2.30	4,06
Average value for decade ending ..	1809-10	2,29	3,30	5,59
	1819-20	2,59	2,08	4,67
	1829-30	4,41	1,25*	5,66
	1839-40	6,64	1,58*	8,22
	1849-50	10,70	8,54	19,24
Total value in ..	1850-51	13,67	11,77	25,44
Average value for decade ending ..	1859-60	19,47	6,72	26,19
	1869-70	48,84	8,07	56,91
Total value in ..	1870-71	40,63	5,80	4,643
Average value for decade ending ..	1879-80	41,54	10,45	5,199
	1889-90	67,54	17,52	8,506
	1899-00	80,57	21,12	10,169
Total value in ..	1900-01	69,73	25,47	95,20
Average value for period ending ..	1906-07	95,77	23,34	1,19,11

[1] *Gazetteer of Bombay City and Island*, Vol. I, 1909. p. 417.

* Complete figures for the coasting trade of these two decades are not available.

The following statement shows the progress of imports and exports in merchandise and treasure with foreign countries from 1801-02 to 1900-01[2]:—

(Rs. in lakhs)

	Imports			Exports				
	Merchandise	Treasure	Total	Merchandise			Treasure	Total
				Foreign	Indian	Total		
Total value in 1801-1802.	72	22	94	....	....	80	1	81
Total value in 1850-1851.	4,54	2,36	6,90	....	....	6,60	16	6,76
Total value in 1870-1871.	11,52	3,31	14,83	....	....	24,82	97	25,79
Total value in 1900-1901.	26,34	976	36,10	....	....	27,16	6,46	33,62

The import trade of Bombay upto 1869-70 was confined chiefly to the United Kingdom, China and the Persian Gulf, though there was some trade with France, Germany and Portugal. Owing to the abolition of the East India Company's monopoly and the opening of the Suez Canal (1869), the current trade from 1870 showed a disposition to return gradually to the channels used before the discovery of the passage round the Cape. Trade with the Mediterranean cities started increasing. London still retained its supremacy and monopolised about 60 per cent of the trade of the Indian Empire, but Trieste, Venice, Geneva and Marseilles were important commercial rivals. During the last quarter of the 19th century, there was a slow rise in the trade with Italy, Austria, Hungary, Belgium and Germany. Japan emerged as an important trading country with Bombay at the opening of this century. Among African ports, Mauritius alone was an important exporter of sugar to Bombay. America, which possessed practically no trade with Bombay till 1879-80, acquired a share aggregating at successive periods since that date to Rs. 22, 34 and 56 lakhs.

[2] *Gazetteer of Bombay City and Island*, Vol. I, 1909, pp. 418-19.

During the first half of the nineteenth century the export trade of Bombay was confined chiefly to Asian countries and the United Kingdomi but subsequent to 1870 other European countries headed by France, commenced to acquire an increasing share. The value of these shares at successive periods is shown below :—

(Rs. in lakhs)

Country	1870-71 to 1879-80	1880-81 to 1889-90	1890-91 to 1899-1900	1900-1901 to 1906-07
France ..	180	452	456	394
Belgium ..	5	229	267	314
Germany ..	13	36	199	262
Italy ..	74	275	212	229
Austria-Hungary ..	91	173	137	156
Spain ..	4	20	13	43
Holland ..	13	25	45	39

The chief articles imported from foreign countries in Bombay comprised cotton piece-goods from the United Kingdom, America, Belgium, Germany and Holland; and silk manufactures from United Kingdom, France, Italy, Austria, Hungary and China. Machinery and mill requirements as also woollen manufactures were mainly imported from the United Kingdom, while raw silk was brought from China, Persia and the Straits Settlements. Sugar was imported to Bombay from Mauritius, Austria, Hungary, Germany, United Kingdom, France, Belgium and Java Metals were mainly imported from the United Kingdom. Kerosene and petroleum were imported from America and Russia, while liquors came mainly from the United Kingdom, France, Germany and Belgium.

At the beginning of this century raw cotton was exported from Bombay to Japan and the United Kingdom. Cotton twist and yarn were exported to China and cotton piece-goods to Gulf countries and Africa. The British Government had prohibited the import of Indian piece-goods in Great Britain with the motive to assure protection to the British cotton textile industry. This measure hampered Indian economic interests and adversely affected the textile industry in Bombay. The other articles exported from Bombay were wheat, oil-seeds, raw wool, opium, etc.

The history of Bombay in the second half of the nineteenth century is a remarkable record of progress in every direction. Railway communication with the interior was opened up in 1853. Steam coastal ferry services were inaugurated in 1866. Six cotton mills commenced working between 1854 and 1860. Bombay had become the cotton market of Western and Central India. The opening of the Suez Canal for traffic in 1869 revolutionised the maritime trade of Bombay. Besides, the year 1858 witnessed the exit of the East India Company after a chequered career of about two and half centuries and Bombay passed under the direct rule of the British Crown.

As a result of all these developments, there was a remarkable upward swing in the trade of Bombay Port. The demand for Indian goods from distant markets coupled with the impact of improved internal communications brought about a rise in imports and exports.

The traffic handled at Bombay Port since 1900-1901 showed a steady increase till 1913-14. The increase was more remarkably recorded in exports and by 1913-14, the quantity of exports was twice the quantity exported at the turn of the century. Imports, however, fluctuated around 2·6 million tonnes and the total value of imports and exports increased from Rs. 53 crores in 1900-01 to Rs. 95 crores by 1909-10 and to Rs. 1,32 crores by 1913-14. During World War I, the imports declined, while the exports recorded a substantial increase. With the end of the War, the traffic declined sharply, but after the initial decrease, the value of imports and exports again picked up rapidly exceeding the pre-war levels.

Another achievement of the Port Trust in the pre 1914 period, was the construction of B.P.T. railway which was commissioned with effect from 1st January 1915. Before the commencement of the Port railway, the bulk of the traffic had to be conveyed from ship to rail and *vice versa* by cumbersome and expensive method of transportation by bullock carts which involved double handling and storage.

The volume of trade handled by B.P.T. Railway declined from 5·02 million tons in 1913-14 to 4·01 million tons in 1915-16 and then stood at 4·15 million tons in 1918-19. Eventhough, the declining trend existed for a short while after the termination of the War in November 1918 the traffic picked up rapidly and the figure for 1919-20 rose to 6·25 million tons. The increasing trend in the volume of trade was maintained till 1929-30, when it reached 6·69 million tons.

The interregnum between the two World Wars witnessed a substantial increase in the volume of traffic handled at the Port. The volume of imports well exceeded over three million tons a year between 1920-21 and 1929-30, however, the volume of exports showed a decreasing trend. It was succeeded by the world-wide depression of the early thirties which resulted in the contractions of the world trade and had its adverse effect on the imports-exports handled at the port. The volume of trade, both imports and exports, dropped to 4·7 million tons in 1932-33 from 6·7 million tons in 1929-30 and then fluctuated approximately to the level of 5·4 million tons till 1939-40. But the decline in exports was more severe than in imports.

The onset of World War II, did not immediately lead to the revival of traffic as had happened at the time of World War I. However gearing up the defence efforts along with the revival of industrial activity to meet the needs of the defence led to the revival of trade handled at the Port to the earlier level of 6 million tons from 1941 onwards. With the entry of Japan into the War and her occupation of Burma, the Bay of Bengal was virtually closed to shipping. This resulted in the diversion of country's sea borne trade to the West Coast ports of Bombay, Karachi and Cochin. As these ports were not well-equipped to handle all the additional traffic this led to acute congestion and serious delays in the Bombay Port in 1943-44. The cessation of the War in Europe in May 1945 brought some relief to the Port traffic.

The partition of the country which accompanied the attainment of Independence in 1947 necessitated a total reassessment of the Port schemes not only for rehabilitation but also for expansion and modernisation, as much of the trade formerly handled at Karachi was diverted to Bombay Port. The long-term schemes for the development of port facilities and provision of equipment were integrated with the first and subsequent Five-Year Plans.

During 1947-48, the rupee value of exports from Bombay Port stood at about 80 crores which increased to about Rs. 1,81 crores in 1950-51. During the year 1950-51, the value of exports of cotton manufactures stood at the highest, as the same accounted for 56·40 per cent of the total value of exports.

The tables No. 12 and 13 indicate the value of principal articles of Indian produce and manufactures, exported from Bombay port and principal articles imported into Bombay port from foreign countries.

TABLE No. 12

PRINCIPAL ARTICLES EXPORTED FROM BOMBAY PORT TO FOREIGN COUNTRIES[1]

Articles	Total Exports (Rs.)		Percentage to total exports during 1950-51
	1948-49	1950-51	
1	2	3	4
Cotton manufactures	21,07,76,667	1,02,14,75,161	56·40
Seeds	3,22,72,450	11,26,35,744	6·22
Cotton wasts	4,30,21,012	10,36,48,098	5·72
Oils	3,30,40,984	9,10,22,523	5·03
Cotton-twist and yarn.. ..	76,56,329	7,74,25,831	4·28
Spices	1,97,88,944	6,89,37,171	3·81
Cotton-raw	13,67,40,853	4,64,11,428	2·56
Wool-raw	1,05,22,082	3,55,84,736	1·98
Hides and raw-skins	86,13,161	1,92,30,426	1·06
Metals and ores	1,12,74,405	1,82,87,124	1·01
Gums and resins	77,49,550	1,72,04,349	0·95
Tobacco	1,86,35,525	1,70,69,396	0·94
Postal articles	1,06,22,639	1,47,61,395	0·82
Opium	7,83,360	1,39,08,635	0·77
Fruits and vegetables ..	43,30,488	1,23,51,244	0·68
Haberdashery and millinery ..	17,75,870	1,21,39,637	0·67
Leather	68,03,084	1,00,13,840	0·55
Tea	1,23,99,775	92,13,343	0·51
Wool manufactures	58,63,662	91,23,818	0·50
Other textile manufactures ..	5,14,18,007	86,77,595	0·48
Apparel	58,85,768	82,82,041	0·46
Rubber manufactures ..	52,32,255	74,15,666	0·41
Drugs and medicines	53,80,800	62,51,056	0·35
Manures	14,59,181	62,24,461	0·34
Bristles	57,13,928	43,62,884	0·24
Chemicals	31,46,129	40,94,402	0·23
Wood and timber	34,83,345	34,44,241	0·19
Provision and oilmen's Stores ..	64,84,069	33,21,684	0·18
Art works	9,95,969	31,47,437	0·17
Myrobalans	11,95,383	24,51,472	0·14
Fish (except canned fish) ..	19,51,410	23,86,489	0·13
Dyeing and tanning substances except myrobalans.	6,67,066	21,65,154	0·12
Hemp-raw	7,98,398	12,26,928	0·07
Soap	46,07,153	2,88,001	0·02
Oil-cakes	3,53,852	2,41,334	0·01
Grain, pulse and flour ..	....	N.A.	....
Jewellery (excluding imitation jewellery etc. also plates of gold and silver).	....	N.A.	....
Other articles	4,47,23,403	3,65,42,804	2·00
Total ..	72,61,66,957	1,81,09,67,548	100·00

[1] *Statistical Abstract of Bombay State*, 1952.

TABLE No. 13

PRINCIPAL ARTICLES IMPORTED INTO BOMBAY PORT FROM FOREIGN COUNTRIES[1]

Articles	Total Imports		Percentage to total imports during 1950-51
	1948-49	1950-51	
1	2	3	4
	Rs.	Rs.	
Cotton–raw	55,53,00,505	90,97,59,959	27·96
Oils	21,13,61,455	26,76,95,995	8·23
Machinery and mill work ..	33,12,36,301	42,17,74,476	12·96
Grain pulse and flour	37,75,99,927	27,21,82,036	8·37
Metals and ores	15,43,55,158	21,22,67,721	6·52
Artificial silk	11,72,95,459	13,94,98,500	4·29
Dyeing and tanning substances ..	11,93,13,806	11,82,80,950	3·64
Motor cars and motor cycles, etc	14,77,87,258	10,68,13,371	3·28
Instruments and apparatus ..	9,69,19,183	9,50,54,110	2·92
Drugs and medicines	5,23,49,726	6,65,99,400	2·05
Fruits and vegetables	4,03,09,573	5,43,87,711	1·67
Paper and paper board ..	7,55,74,511	5,38,80,508	1·66
Postal articles not specified ..	3,03,12,459	1,36,82,154	0·43
Chemicals and chemical preparations.	10,25,30,683	5,25,01,040	1·61
Manures (excluding oil-cakes) ..	82,36,337	4,15,22,497	1·28
Wool-raw	2,36,93,901	3,52,13,777	1·08
Hardware	3,47,08,528	2,67,37,928	0·82
Provision and oil-men's store ..	2,87,92,969	2,50,28,086	0·77
Spices	1,68,55,711	2,20,28,387	0·68
Starch, dextrine and ferina ..	2,10,27,192	2,18,69,365	0·67
Aircrafts and parts thereof	1,97,33,833	2,00,87,851	0·62
Rubber	59,12,063	1,71,15,851	0·53
Cycles and parts thereof ..	2,35,26,236	1,48,80,597	0·46
Wool manufactures including yarn and Knitting wool.	5,62,81,261	1,46,36,162	0·45
Seeds	73,27,099	1,39,01,845	0·43
Silk–raw (including waste) ..	1,00,45,894	1,38,14,629	0·42
Cotton manufactures.. ..	8,25,37,963	1,35,36,170	0·42
Staple fibre-yarn	5,146	1,34,54,601	0·41
Clocks and watches	2,00,86,500	97,52,486	0·30

[1] *Statistical Abstract of Bombay State*, 1952.

TABLE No. 13—*contd.*

Articles	Total Imports		Percentage to total imports during 1950-51
	1948-49	1950-51	
1	2	3	4
	Rs.	Rs.	
Arms and ammunitions, etc. ..	25,14,536	1,32,29,064	0·41
Wood and timber	1,44,53,431	78,51,328	0·24
Belting for machinery ..	1,05,82,528	67,97,724	0·20
Gums and resins	93,11,795	61,69,788	0·19
Liquors	1,18,30,861	60,66.720	0 19
Precious stones and pearls, unset	68,92,765	56,29,983	0·17
Paints and painters' materials ..	1,42,64,462	56,56,479	0·17
Tallow and stearine ..	37,82,029	54,77,524	0·17
Leather and manufactures thereof	73,78,557	50,17,878	0·15
Building and engineering material	97,94,603	43,27,735	0·13
Glass and glassware.. ..	1,00,12,573	36,58,551	0·11
Carriages and wagons and parts for railways.	13,17,487	37,33,293	0·11
Books and printed material ..	46,34,684	34,04,083	0·10
Tobacco	81,07,424	27,85,836	0·09
Sugar	5,303	27,95,129	0·09
Stationery	56,57,549	26,77,197	0·08
Bobbins	67,13,735	24,44,868	0·08
Earthware and porcelain ..	15,25,267	14,90,451	0·05
Silk manufactures including silk yarn	52,28,893	14,45,382	0·04
Cotton twist and yarn ..	1,68,62,107	8,72,725	0·03
Toilet requisites	25,02,993	7,30,386	0·02
Apparel	11,37,265	6,59,730	0·02
Animals–living	2,95,344	6,04,257	0·02
Toys and requisites for games ..	9,09,053	2,98,840	0·01
Fents being *bona fide* remnants of piecegoods or other fabrics.	20,66,850	1,71,923	0·01
Haberdashery and millinery ..	5,12,814	1,53,616	....
Tea	....	....	....
Other articles	8,87,01,080	7,11,40,465	2·19
Total ..	3.01,80,12,665	3,25,32,49,118	100·00

Since Independence, there had been a continuous rise in the traffic handled by the Bombay Port upto 1967-68, which was mainly due to

setting of two oil refineries at Bombay and the commissioning of the Marine Oil Terminal in 1954-56. From 7·00 million tonnes in 1950-51, on the eve of the launching of the First Five Year Plan, the traffic reached the peak figure of 18·27 million tonnes in 1966-67. The rupee value of the traffic passing through the Port also increased from 511·48 crores in 1950-51 to Rs. 953·82 crores in 1968-69.

The figures of imports and exports (coastal and foreign combined) handled at the Port including docks and *bundars* in certain selected years are given below*:—

Year	Imports	Exports	Total figures in Million D. W. Tonnes (i.e., '0000 ommitted)
1	2	3	4
Pre-Independence			
1938–39 ..	.. 3·26	1·92	5·18
1946–47 ..	.. 3·84	1·52	5·36
Post-Independence			
1947–48 ..	.. 4·76	1·71	6·47
1950–51 ..	.. 5·27	1·73	7·00
1955–56 ..	.. 6·81	3·66	10·47
1960–61 ..	.. 10·79	3·93	14·72
1965–66 ..	.. 12·97	5·14	18·11
1966–67 ..	.. 13·23	5·04	18·27
1968–69 ..	.. 12·10	4·31	16·41
1969–70 ..	.. 11·43	3·60	15·03
1970–71 ..	.. 10·86	3·54	14·40
1971–72 ..	.. 12·43	3·70	16·13
1972-73 ..	.. 12·32	3·22	15·54
1973–74 ..	.. 14·25	4·28	18·46

Bombay port handles the maximum import traffic in the country and in the quantum of exports, it is next only to Marmagoa. The same can be proved with the help of 1967 figures of imports and exports. During 1967, the quantum of imports in Bombay Port accounted for 40·20 per cent of the total quantum arrived in all the ports in the country, while the quantity of exports during the same year from the port accounted

* *The Port of Bombay, a Brief History*, Bombay Port Trust.

only for 6·92 per cent of total seaborne exports. In terms of value during the same year Bombay Port handled about 26 per cent of the total traffic of major ports in India. A noticeable change has occurred in the composition of the trade and the Port now handles a much larger variety of cargo, than it had handled in the past.

An examination of the composition of traffic shows that the traffic of petroleum oil and lubricants has gone up considerably since 1954-55 and constituted on an average, in 1966-67 about 55 per cent of the total traffic of the Port. Increased demand for fertiliser products has been responsible for the increased imports of fertiliser raw materials, like crude sulphur, urea, rock phosphate, etc. The other main items which have contributed to the increase in the traffic of imports consist of iron and steel and machinery for plan projects, foodgrains, building materials and chemicals. The items of export are oil-cakes, iron scrap and dross, sugar, iron and steel and manganese ore.

From 1966-67 to 1970-71 the traffic of the Port, however declined mainly due to four reasons. The main reasons for the decline were the decline in the coastal exports of petroleum, oil and lubricants consequent upon the setting up of oil refineries elsewhere in India; decline in iron and steel imports consequent on the growth of indigenous production; decline in imports of foodgrains as a result of 'Green Revolution' in India and the virtual disappearance of the iron ore traffic from the Port as a result of the development of other ports for ore export.

The following statement shows the value and volume of exports and imports through Bombay Port during 1964-65 to 1971-72* :—

Year	Exports (including re-exports)		Imports	
	Gross weight (tonnes)	Value (in thousands of Rs.)	Gross weight (tonnes)	Value (in thousands of Rs.)
(1)	(2)	(3)	(4)	(5)
1964-65	2,124,365	N.A.	6,771,142	N.A.
1965-66	1,560,672	N.A.	5,057,673	N.A.
1966-67	2,220,389	2,095,298	8,418,040	7,053,111
1967-68	1,181,674	1,816,659	4,633,182	7,448,150
1968-69	1,844,012	2,975,679	8,229,138	6,562,555
1969-70	1,638,283	2,992,931	4,043,624	6,162,750
1970-71	1,854,924	4,196,847	2,519,570	6,255,691
1971-72	1,384,670	3,739,859	3,603,899	8,433,326

* The Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce, Government of India, Calcutta.

Region-wise imports into and exports from Bombay Port (docks and *bundars* combined) to foreign countries excluding overside and coastal traffic based on audited returns are shown in table Nos. 14 and 15 given at the end of the chapter.

The percentage of exports from Bombay Port to some of the countries, in the years 1975-76 and 1980-81 is shown below:—

Commodities exported to	Percentage of exports	
	1975-76	1980-81
(1) Japan	6·00	2·17
(2) U.S.A.	5·37	3·70
(3) U.K.	7·50	2·41
(4) Far Eastern countries	7·07	8·96
(5) African countries	8·75	4·66
(6) Other Asian countries	33·61	29·40
(7) Other European countries	18·04	14·70
(8) U.S.S.R.	2·80	9·24

The year 1980-81* recorded 26,01,700 metric dead weight tonnes of exports from the Port to foreign countries including adjacent countries (excluding coastal traffic) and 1,16,09,100 metric dead weight tonnes of imports into Bombay Port from other countries excluding coastal traffic.

Out of the total volume of exports from the Port to foreign countries during 1975-76, fertilisers accounted for 20·06 per cent; whereas sugar, accounted for 15·52 per cent; metal and metal products, 11·46 per cent; fruits and vegetables, 5·12 per cent; and oil-seeds 2·74 per cent. The corresponding percentages for 1980-81 were 1·3, 1·00, 9·70, 6·15 and 0·35 respectively.

Of the total imports into Bombay Port from foreign countries during 1975-76, foodgrains and other foodstuffs constituted 19·05 per cent, chemicals constituted 9·52 per cent and metal and metal products constituted 3·10 per cent of total imports. The corresponding percentages for 1980-81 were 0·7, 5·28 and 15·47, respectively.

**Annual Administration Reports* 1975-76 and 1980-81, Bombay Port Trust.

The percentage of imports from some of the countries to total imports in Bombay Port is shown below :—

	Country	Percentage to total imports of the year	
		1975-76	1980-81
1.	Group of other Asian countries ..	61·16	42·95
2.	U.S.A.	16·84	7·46
3.	Other European countries	7·58	11·67
4.	U.S.S.R.	4·20	2·86
5.	Japan	2·90	3·81
6.	Canada	2·48	4·11
7.	U.K.	0·93	1·81
8.	Other American countries	0·87	2·08
9.	West Germany	0·86	3·61
10.	Miscellaneous	0·60	4·92
11.	Far Eastern countries	0·53	6·35
12.	Australia and New Zealand ..	0·43	1·25
13.	African countries	0·42	0·93
14.	Pakistan	0·19	1·09

Air-borne Trade : Next to sea routes, airways play an important role in the foreign trade of the country. The main gateways for export by air from the country are the international airports at Bombay, Calcutta, Delhi and Madras. In the trade of Bombay with foreign countries, the Bombay Airport accounts for small amount of foreign trade. Though the quantity of trade handled by the airport is very small than that of the Bombay port, the variety and the value of commodities handled by the airport are very important. The principal commodities exported through the airport (International) are pearls and precious stones, developed cine films, pharmaceutical products, textile products, crude minerals—mainly mica, clothing excluding furs, vegetables, fresh fruits, etc.

Some of the commodities are very costly in relation to bulk and can stand the high cost of air freight, such as pearls and precious stones, developed cine films, pharmaceutical products, etc. Some of the commodities exported by air are perishable and hence need to be moved rapidly such as vegetables and fresh fruits. Some of the commodities exported by air are seasonal and fashionable goods *e.g.* textiles, and clothing and are therefore subject to great loss in value if they do not reach their markets in proper time. Besides, there is a group of commodities generally listed as others, which include electronic equipment, machine tools,

and machinery parts. These commodities on some other criteria justify the higher cost of air freight or demand for the speedy shipment, such as saving on inventory cost, the quick need for a replacement part of machine to minimise the duration of shut downs, saving on packaging or insurance, etc.

During the year 1967, among the four major international airports, Bombay airport accounted for 62 per cent of the value of the total foreign exports and 58 per cent of the value of total foreign imports by air. The value of total foreign exports from Bombay airport amounted to Rs. 3,096 lakhs as against the total value of foreign exports through all the airports in the country which amounted to Rs. 5,011 lakhs. The value of foreign imports at Bombay airport during the same year stood at Rs. 1,788 lakhs; as against Rs. 3,087 lakhs as the total value of foreign imports through all the international airports in the country.

Since 1970-71 onwards, the total exports including re-export and total imports from Bombay airport showed an increasing trend.

The following statement gives value of foreign imports and exports (including re-exports) handled through Bombay airport :—

(Rs. in lakhs)

Year	Exports (including re-exports)	Imports
1970-71	5,688	5,031
1971-72	6,201	6,190
1972-73	10,949	9,155
1973-74	15,790	14,275
1974-75	22,493	14,412

During 1974-75, the total foreign exports by air from Bombay airport accounted for about 18 per cent of the total foreign exports including re-exports and 11 per cent of the total foreign imports by sea, air and land.

Export Credit and Guarantee Corporation : With a view to augmenting the foreign exchange resources of the country for the implementation of the development plans, several export promotion measures were contemplated by the Government of India in the immediate post-Independence

period. Among many other export promotion measures, the introduction of a scheme of export credit insurance which had contributed significantly to the expansion of the export trade of the industrially advanced countries was considered by a committee appointed by the Government in 1956. The committee in its report concluded that the provision of export credit insurance facilities would considerably strengthen the hands of our exporters in developing new export markets for India's products. Besides, this facility would also assist exporters in securing the required finance facilities from banks in the country. The recommendations of the committee regarding the introduction of the credit insurance scheme were implemented by the Government which resulted in the setting up of the Export Risks Insurance Corporation Limited, as a fully Government owned company.

The study group on export finance set up by the Govenment of India in 1962 recommended the transformation of Export Risks Insurance Corporation into the Export Credit and Guarantee Corporation and the transformation accordingly took place on the 15th of January 1964. The Export Credit and Guarantee Corporation (ECGC) is a credit insurance organisation established to encourage, facilitate and develop India's export trade. It provides a service which is not available from commercial companies. Briefly stated, the objective of the Corporation is to improve the capacity of Indian exporters to sell in the international markets and also ensure that banks are enabled to lend more liberally and with less risk for financing exports.

The main functions of the Corporation include issue of insurance policies to Indian exporters to protect them against losses that they may suffer in the event of certain commercial and political risks blocking or delaying the receipts of payment for goods or services exported. It also furnishes in India on a liberal basis the pre-shipment and post-shipment credit facilities needed by them to maintain and expand their export trade.

The Corporation has a branch at Bombay besides the branches at Calcutta, Delhi and Madras and a field office at Cochin. The Corporation is under the administrative control of the Ministry of Foreign Trade. It has introduced a wide range of insurance policies for exporters covering the commercial and political risks inherent in export on credit terms, as well as a number of guarantees to banks on behalf of exporters to provide a more easy and liberal flow of finance for export transactions.

In order to help the small exporters the Corporation agrees to cover banks upto 90 per cent of the risk under its packing credit guarantee as against the normal coverage of 66⅔ per cent. The business of the Corporation has grown at a rapid pace over the years. The branch office of the Corporation at Bombay was established at the end of 1970. Besides the area of Greater Bombay, the branch also covers the area of the whole of

Maharashtra, Gujarat, Madhya Pradesh and Goa, Daman and Diu. The growth in the business of the Bombay branch under policies and guarantees since 1973 is shown in the following statement:—

Year	No. of policies issued during the year	Maximum liability in respect of policies issued (Rs. in crores)	No. of policies in force	Maximum liability in respect of policies in force at the end of the year (Rs. in crores)	Risk value (Rs. in crores)	Premium income (Rs. in crores)
1	2	3	4	5	6	7
Policies—						
1973 ..	791	37	1,514	65	64	19
1974 ..	862	46	1,645	89	83	24
1975 ..	875	45	1,756	102	152	43
1976 ..	1,204	66	2,033	126	199	54
Guarantees—						
1973 ..	1,461	72	1,145	42	552	69
1974 ..	1,301	74	908	47	742	92
1975 ..	1,127	63	837	51	1,028	86
1976 ..	1,170	66	629	57	1,331	97

Export Promotion Councils : A number of export promotion councils have recently been established with a view to assisting in the promotion of export of specific commodities. The main functions of these councils are to conduct market surveys, arrange exhibitions, propaganda and publicity and liaison between trade and government, as also to send trade delegations abroad. The following export promotion councils have either their head offices or branch offices in Greater Bombay :—

(1) Basic chemicals and pharmaceuticals and soaps export promotion council ;
(2) Chemicals and allied products export promotion council;
(3) Cotton textile export promotion council;
(4) Engineering export promotion council;
(5) Export promotion council for finished leather, leather manufactures;
(6) Gem and jewellery export promotion council;
(7) Plastics and Linoleums export promotion council;
(8) Silk and rayon textiles export promotion council;
(9) Wool and woollen goods export promotion council.

The information about some of these export Promotion councils is given below :—

(*i*) *Plastics and Linoleums Export Promotion Council* : The Council then known as the Plastics Export Promotion Council was formed in June 1955. In 1958, linoleums were brought under the purview of the council and it came to be known as the Plastics and Linoleums Export Promotion Council. The head-office of the Council is at Bombay with regional offices at Calcutta and Madras.

The council had 675 members in Greater Bombay (January 1977). It is associated with the following organisations for the varied services rendered by them :—

(1) The Federation of Indian Export Organisation, Delhi,
(2) Indian Institute of Foreign Trade, New Delhi,
(3) Indian Council of Arbitration,
(4) Indian Standards Institution, New Delhi,
(5) Western India Shippers' Association, Bombay,
(6) Eastern India Shippers' Association, Calcutta and
(7) Indo-Yugoslav Chamber of Commerce, Calcutta.

It has three elected committees, one each for three regions to look after the admissions of members and exporters' interest in the respective region. There are in all 13 commodity-wise panels comprising major exporters in Bombay functioning in the Council. These panels are for the commodities such as plastic spectacle frames, plastic bangles, moulded and extruded goods, PVC fabricated goods, plastic laminates, fountain pens, electrical accessories, PVC leather cloth, HDPE woven sacks, plastic imitation jewellery, PVC pipes, PVC footwear and thermosetting raw materials.

The prices are determined every quarter by a price fixation committee for each raw material. The members of these committees comprise the raw material suppliers, processors and Government nominees. The price fixation committees are working for poly-vinyl chloride, high density polyethylene, low-density polyethylene, polystyrene, urea formaldehyde and phenol formaldehyde.

The ultimate objective of the council is to increase export worth Rs. 50 crores per annum from 1978-79 onwards. This will however, depend largerly upon the commissioning of the plastic raw material plants at the Indian Pharmaceuticals Ltd. at Baroda. The Council has already created many markets abroad to absorb the output by sending annually 20 to 30 manufacturers and exporters under assistance from the Marketing Development Fund and other institutions.

The data for export marketing is collected from the reports of India's missions abroad, financial papers, overseas professional journals, and

institutions like the Directorate General of Commercial Intelligence and Statistics, Trade Development Authority, Indian Institute of Foreign Trade, International Trade Centre, Customs etc. The service for overseas buyers is rendered through an overseas journal, commodity folders, and brand catalogues in the principal foreign languages.

The approximate total value of exports of the selective firms in Bombay who are the regular exporters of the Council is as follows :—

(In crores of Rs.)

Year	Value of exports of the regular exporters in Bombay
1971–72	3·09
1972–73	3·71
1973–74	6·96
1974–75	8·80
1975–76	9·31

The exports of the regular exporters in Bombay accounted for almost fifty per cent of the total exports of the Council.

The major export commodities of the council are plastic, electrical accessories plastic imitation jewellery, moulded and extruded goods, gramophone records, PVC pipes and special PVC sheeting, jute based linoleums, plastic bangles, spectacle frames, polylined jute, etc.

The new items exported and the items which had dropped out but made their appearance again in 1974-75, 1975-76 were PE film sheets and bogs, vinyl asbestos floor tiles, polyurethane foam and its products and dolls and toys. The commodities are exported by sea and air.

Dubai, Nigeria, Saudi Arabia, U.K., Bulgaria, Czechoslovakia, Iraq, Poland, U.S.A., and U.S.S.R. are some of the major export markets which import the commodities exported through the Council.

The new markets which entered in the list of the Council during 1974-75, and 1975-76 were Botswana, Burma, Burundi, Dahomey, Iceland, Mozambique, South Korea and Ruwanda. On the other hand, the Council lost the markets of Brazil, Egypt, Laos, Sudan, Vietnam, Yugoslavia and Zaire during the same years.

During 1973-74, of the 18 top exporters listed by the Council, 14 were from Bombay; while during 1974-75, of the 15 top exporters listed by the Council, 12 were from Bombay. The Council during 1975-76 participated in two specialised exhibitions abroad *viz.*, OPTICA–75 and K–75. The former was a specialised exhibition for the optical industry held at

Wiesbaden in which one firm of Bombay participated and the latter was International plastics and rubber exhibition held at Dusseldorf—in which 17 member firms from Bombay participtaed.

(*ii*) *Engineering Export Promotion Council* : The regional office of the Council was opened at Bombay in 1959 with main objectives to support, protect, maintain, increase and promote the exports of engineering goods. The Council has been highly instrumental in achieving an objective of increasing and promoting the export of engineering goods.

The Council's leading member enterprises have the requisite capabilities to provide turn key jobs and to undertake major engineering construction works not only in the country but also abroad. During 1976, there were as many as 1,289 ordinary members and 968 associated members in the regional office at Bombay. These members represent Maharashtra and Gujarat States. The commodities exported by the Bombay office may be grouped broadly under four categories *viz.*, (i) capital goods comprising textile and jute mill machinery and fabricated steel structurals, wires of cables etc., (ii) primary steel and pig iron, (iii) non-ferrous products, and (iv) consumer durables comprising diesel engines, pumps, etc. Most of the commodities are exported by sea-route and air. South-Cast Asia has been the biggest market for engineering goods exported through the Council. Exports to the Continent of Africa have been growing at a steady pace. Some of the markets where engineering products have been supplied in large quantities are Nigeria, Tanzania, Kenya, Zambia and Zaire.

The export performance of the member firms in Bombay during 1973-74, 1974-75 and 1975-76 was of the value of Rs. 6,931.49; Rs. 9,514.47 and Rs. 77,136.65 lakhs, respectively.

The exports of 29 member-firms of the Council in Bombay for the supplies made to the projects in India during 1973-74, 1974-75 and 1975-76 amounted to Rs. 541.80 lakhs; Rs. 541.25 lakhs and Rs. 11,86.32 lakhs, respectively.

State Trading Corporation : The State Trading Corporation was registered in May 1956 under the Companies Act, 1956 as a private company with the capital of Rs. one crore and a paid-up capital of Rs. five lakhs which was subsequently raised to Rs. two crores. As a private limited company, the State Trading Corporation was acting as the agency mainly for exporting mineral ores such as iron ore, manganese ore, etc.; and some consumers goods such as woollen fabrics, shoes, salt and jute goods to foreign countries. It also used to undertake imports of manufactured articles like nonferrous metals, steel, chemicals, fertilisers, etc. In pursuance of the decision of Government of India, another private company viz.; Minerals and Metals Corporation of India was registered in September 1963, for undertaking the exports from India of mineral

ores and imports into the country of semi-manufactured articles and allied commodities. The company took over the business and trade activities of the State Trading Corporation of India Ltd., pertaining to minerals, ores and other allied metal products from October 1963.

The declared purpose of the State Trading Corporation, when it was set up in May 1956, was to organise and effect exports from and imports into India of all such goods and commodities as may be determined by the company from time to time, and to undertake the purchase, sale and transport of in such goods and commodities in India or anywhere else in the world.

The State Trading Corporation has its head office at New Delhi and 24 branch offices all over India including one at Bombay and 18 overseas offices.

The objectives of the Corporation were subsequently enlarged from time to time to cover a much wider field. Its present main objectives cover (i) developing foreign trade, particularly exports by expanding existing markets and exploring new ores; (ii) organising trade with the State Trading countries; (iii) handling export and import of bulk commodities essential for the economic and industrial development of the country by the system of commodity exchange under barters, and link deals; (iv) supplementing private trade in spheres where private trade has a difficulty in functioning effectively; (v) undertaking import and distribution of commodities in short supply; (vi) undertaking price-support and buffer-stock operations in specific commodities with high export potential; and (vii) undertaking processing, conversion and manufacture of exportable products.

Now, the group of State Trading Corporations consists of State Trading Corporation, Project and Equipment Corporation of India Ltd.; Handicrafts and Handlooms Export Corporation of India Ltd., Cashewnut Corporation of India Ltd., State Chemicals and Pharmaceuticals Corporation of India Ltd., and Central Cottage Industries Corporation of India Ltd.

The Project and Equipment Corporation of India Ltd., is engaged in activities pertaining to marketing of engineering and railway equipments; while the Handicrafts and Handlooms Corporation of India Ltd., is entrusted with the export of handicrafts and handlooms from India and the Cashewnut Corporation of India Ltd. handles the imports of cashewnut into India.

The State Trading Corporation as the main agent acting in foreign trade of the country is divided into two divisions *viz.*, commodities division and advisory and services division.

The total sales by Bombay branch of the Corporation amounted to Rs. 215.59 crores during 1974-75. The same included imports, exports as also domestic sales.

The total exports of Bombay Branch* of State Trading Corporation amounted to Rs. 88.80 crores during 1974-75. Of this, the exports of oils and fats accounted for the highest *i.e.* Rs. 27.50 crores; while the exports of leatherware amounted to Rs. 17.50 crores. The exports of other articles *viz.*, textiles, food, general products, chemicals and drugs amounted to Rs. 9.00 crores, Rs. 1.41 crores, Rs. 1.15 crores, Rs. 57 lakhs and Rs. 55 lakhs, respectively. The total exports of Bombay branch were 23 per cent of the total exports by the State Trading Corporation.

The imports by the Bombay branch amounted to Rs. 1,26.21 crores, and accounted for 46 per cent of the total imports by the State Trading Corporation. The imports of different commodities by the Bombay branch during 1974-75 are given below:—

(Rs. in crores)

Imports	1974-75
Chemicals I (Plastics and Petrochemical)	14.50
Chemicals II (Rubber, soap etc.)	14.56
Drugs and Pharmaceuticals	16.77
Oils and Fats	49.22
Foods	0.88
Agricultural Produce	0.90
Textiles I (Natural Fibres)	3.50
Textiles II (Nylon Yarn etc.)	12.37
General Products (News print and synthetic rubber) ..	15.88
Industrial Raw Materials Assistance Centre (IRMAC).	1.13
Total ..	1,29.71

The domestic sales by the branch included only the sale of imported cars and the same amounted to Rs. 58 lakhs during 1974-75.

INLAND TRADE

The total domestic trade of Bombay includes the merchandise brought from the hinterland for export as also for domestic consumption.

*Source.—STC-Group Performance Budget, 1974-75 and Performance Reviews, 1973-74, State Trading Corporation.

The physical facilities available for the movement of export cargo from originating centres to the port are the same as those for the domestic movement of goods and passengers, except in case of ores.

While road and rail play an important role in the movement of export cargo from Bombay, two other modes of transport *viz.*, airways and coastal shipping are also used for export cargo.

The following statement shows percentage* distribution of export cargo of all commodities to Bombay port during 1969-70:—

	By value				By weight			
	Road	Rail	Inland water ways	Others	Road	Rail	Inland water ways	Others
Bombay port	81.41	17.76	....	0.83	53.61	34.94	....	12.05
All ports ..	61.43	18.20	19.74	0.63	14.17	50.12	34.89	0.82

However, the volume of export consignments to Bombay port by rail, road and other modes of transport during 1969-70, formed 85.1, 14.3 and 0.6 per cent of the total, respectively.

Excluding the traffic from within 25 kilometres of Bombay port, which normally has no alternative to road transport, the share of different modes of transport in the total export cargo of all commodities during 1969-70 was as follows:—

	By value				By weight			
	Road	Rail	Inland water ways	Others	Road	Rail	Inland water ways	Others
Bombay port.	64.56	53.44	....	....	28.39	71.61	....	....
Total of all ports.	57.04	31.25	10.94	0.77	7.51	56.69	35.80	Negligible.

* *Survey of Domestic Transport of India's Export Cargo*, Vol. II, May 1971, Operations Research Group, Baroda.

The share of the three modes of transport in the movement of selected commodities to Bombay port during 1969-70 by value and weight was as follows:—

Commodity	Percentage share of value of exports			Percentage share of weight of exports		
	Road	Rail	Inland waterways	Road	Rail	Inland waterways
Cotton Textile ..	91·2	8·8	....	88·6	11·4	....
Oil–cakes ..	41·7	58·3	....	38·5	61·5	....
Engineering goods ..	95·1	4·9	....	93·5	6·5	....
Iron and steel products	58·1	41·9	....	60·4	39·6	....
Raw cotton ..	33·2	66·8	....	44·5	55·5	....

Rail-borne Trade : Bombay now serves as an entrepot trade centre mainly due to the net-work of railway routes emerging from Churchgate on Western Railway and Victoria Terminus (V.T.) on Central Railway.

The former Great Indian Peninsula Railway was opened for traffic for 1,258 miles (2025km.) in 1870. The Bombay, Baroda and Central India, Railway company incorporated in July 1855 entered into contract with the East India Company for the construction of railway line and the railway was opened for traffic for 312 miles (502 km.) in 1870.

The Great Indian Peninsula (G.I.P.) railway gradually started to serve southern, eastern and north-eastern portions of India and the Bombay, Baroda and Central India railway to serve Gujarat, Rajputana, Central India, United Provinces and the Punjab.

Statistics of goods carried during the first few years after the opening of these two railways are not available. In 1880, the traffic on both these railway lines increased in consequence of the new rail-routes.

The following statement reveals the statistics of imports and exports excluding the railway company's materials from and to stations on the two railway lines in Bombay Island for a few years from 1886 :—

(Figures in tonnes)

Year	Great Indian Peninsula Railway		Bombay, Baroda and Central India Railway	
	Imports	Exports	Imports	Exports
1886	11,55,152	3,32,671	4,55,407	1,66,298
1890	9,38,445	3,16,829	2,71,871	1,86,015
1900	7,16,610	5,60,447	1,87,561	6,97,551
1907	16,27,503	5,86,754	7,31,147	3,58,745

The value of the rail-borne trade of Bombay Island according to the returns published by Government was as given below:—

(Figures in '000 Rs.)

Year	Imports		Exports	
	External	Internal	External	Internal
1888-89	1,81,668	1,07,171	61,386	65,639
1890-91	1,40,488	1,15,716	84,352	77,752
1900-01	1,84,529	95,170	1,34,068	1,35,038
1907-08	2,59,587	1,76,055	2,12,962	1,38,909

Of the total rail-borne trade of Bombay carried during 1907-08 nearly 40 per cent represented trade with other parts of the Bombay Presidency, 17 per cent with the Central Provinces and Berar, 11 per cent with the United Provinces, about 5 to 8 per cent with Punjab; 4 per cent with Madras and one per cent with Bengal.

The article-wise imports and exports carried by the railway to and from Bombay city during 1888-89 and 1907-08* are shown in Table No. 16.

TABLE No. 16

CHIEF ARTICLES OF IMPORTS AND EXPORTS CARRIED BY RAILWAY TO AND FROM BOMBAY CITY

(Quantity in Mds.† and Value in '000 Rs.)

Articles	1888-89		1907-08	
	Quantity	Value	Quantity	Value
Imports— ..	38,442	2,88,839	56,602	4,35,642
1. Coal and coke ..	160	140	725	438
2. Cotton raw	6,374	1,17,649	10,785	2,21,029
3. Cotton Mfrs. European	6	259	9	510
4. Cotton Mfrs. Indian ..	330	11,300	321	12,984
5. Dyes and tans ..	497	2,291	1,413	4,200
6. Wheat	15,364	39,667	2,360	8,656

* *The Gazetteer of Bombay City and Island*, Vol. I. 1909, p. 449.
† 1 Maund = 0.037 Tonnes.

TABLE No. 16—*contd.*

(Quantity in mds. and Value in '000 Rs.)

Articles	1888-89		1907-08	
	Quantity	Value	Quantity	Value
7. Other foodgrains ..	2,751	6,759	4,446	15,098
8. Gunny bags and cloth ..	23	238	226	3,022
9. Hides and skins ..	17	609	181	5,126
10. Liquors	6	112	2	83
11. Metals	114	1,173	10,035	9,536
12. Oils	91	1,632	108	1,777
13. Oil-seeds	9,100	39,065	11,707	63,823
14. Opium	59	46,586	33	20,719
15. Provisions	824	6,466	860	11,845
16. Railway plant and rolling stock.	....	....	84	441
17. Spices	121	2,438	376	5,289
18. Sugar	69	391	130	900
19. Wool, raw	121	3,986	130	4,277
20. Others ..	2,415	8,078	12,671	44,989
21. Gold coins . ..	....	....	....	35,962
22. Silver coins and bullion	....	....	....	13,073
Exports— ..	14,958	1,27,025	31,327	3,51,871
1. Coal and coke ..	5,639	4,934	6,371	4,601
2. Cotton, raw ..	74	1,448	357	4,069
3. Cotton Mfrs. European ..	1,080	47,589	1,790	1,21,223
4. Cotton Mfrs. Indian ..	1,355	9,468	224	9,445
5. Dyes and tans ..	87	1,918	264	6,159
6. Wheat	36	128	58	276
7. Other foodgrains ..	651	3,033	3,321	18,381
8. Gunny bags and cloth ..	445	4,864	497	7,417
9. Hides and skins ..	4	180	47	1,313
10. Liquors	93	3,323	214	7,605
11. Metals	1,961	12,791	4,042	47,358
12. Oils	495	3,016	2,476	14,240
13. Oil-seeds	35	191	163	1,112
14. Opium	1	1,057	2	1,773
15. Provisions	1,026	4,647	1,254	19,147
16. Railway plant and rolling stock.	....	....	1,663	7,270
17. Spices	296	4,943	496	8,883
18. Sugar	987	7,707	2,847	19,560
19. Wool, raw	1	33	1	35
20. Others	692	15,755	5,240	55,002
21. Gold coins*	....	....	....	7,528
22. Silver coins and bullion ..	....	....	....	1,32,323

* Separate figures of bullion and treasure trade are available from 1896-97.

During 1975-76, 12,51,053 tonnes of goods were imported in Greater Bombay at different stations on the Western Railway, whereas 9,14,559 tonnes of goods were exported from the same stations, the details of which are shown in the following statements.

(*i*) *Western Railway* : The following statement shows the statistics of imports and exports by Western Railway[1] during 1974-75:—

Station/Goods Depot	Imports		Exports	
	No. of wagons	Weight in tonnes	No. of wagons	Weight in tonnes
1	2	3	4	5
Dadar	4,953	96,955	732	12,212
Mahim junction	1,598	23,478	871	7,406
Bandra	10,887	39,791	3,606	33,739
Andheri	6,536	1,26,864	690	11,195
Jogeshwari	45,147	2,42,699	8,516	93,707
Goregaon	2,078	11,805	540	5,908
Kandivli	3,303	74,927	840	15,932
Borivli	2,272	85,598	388	1,808
Carnac Bunder	37,251	5,08,956	44,567	7,32,652
Total ..	1,14,025	12,11,073	60,750	9,14,559

(*ii*) *Central Railway* : The following statement shows the turnover of goods traffic from different depots in Bombay on Central Railway[2] during 1975-76 and 1976-77:—

(Figures in tonnes)

Goods Depot	Loading		Unloading	
	1975-76	1976-77	1975-76	1976-77
1	2	3	4	5
Wadi Bunder	11,94,227	14,15,703	16,20,282	16,71,056
Sion	46,920	71,392	1,82,400	3,69,340
Kurla	4,828	3,685	2,647	9,008
Trombay	17,89,272	21,62,029	6,11,891	1,59,602
Vidyavihar	25,348	22,835	3,67,366	3,53,592
Ghatkopar	5,555	3,952	70,260	1,00,720
Vikhroli	13,863	14,628	81,320	1,25,703
Bhandup	37,601	39,036	94,185	83,016
Total ..	31,17,614	37,33,260	30,30,351	28,72,037

[1] Public Relations Officer, Western Railway, Bombay.
[2] Divisional Superintendent, Central Railway, Bombay.

During 1975-76, 31,16,614 tonnes of goods were exported by Central Railway from different goods depots within Greater Bombay revenue limits. The same increased to 37,33,260 tonnes during 1976-77. The imports by Central Railway arriving in different goods depots within Greater Bombay area amounted to 30,30,351 tonnes during 1975-76 and the same increased to 42,82,037 tonnes during 1976-77.

The railways operate different schemes for the movement of goods such as quick transit service, container service and ordinary goods movement. In addition some of the export consignments are moved by passenger trains.

The quick transit service is operated between selected pairs of stations, and the delivery of goods booked under this scheme is guaranteed, the stipulated delivery period being observed in 95 per cent of the cases. The container service has been introduced to provide door to door service, thereby offering facilities comparable to those offered by road transport.

The commodity-wise tonnage of export movement from origin connected by quick transit service (Q.T.S.) with Bombay Port in 1969-70 is shown in Table No. 17.

TABLE No. 17

TONNAGE OF EXPORT MOVEMENT FROM ORIGINS CONNECTED BY QUICK TRANSIT SERVICE WITH BOMBAY PORT IN 1969-70*

Origin	Commodities	Tonnage of export traffic		
		Total of all modes of transport	Moved by rail including quick transit service	Moved by quick transit service
1	2	3	4	5
Hyderabad ..	Oil-seeds, textile yarn, cotton textiles, fruit-preserved.	20,774	....	....
Ahmedabad ..	Iron and steel, oil-cakes, cotton textiles, textile fibres, engineering goods.	29,207	22,309	1,893
Faridabad ..	Crude vegetable material, engineering goods.	3,436	30	..
Cochin ..	Tea ..	988	988	....
Bhopal ..	Artware ..	3	....	....
Mysore ..	Cotton textiles, wood manufactures, textile fabrics excluding cotton and jute, artware.	1,945	107	....

* *Survey of the Domestic Transport of India's Export Cargo*, Vol. II, May 1971; by Operations Research Group, Baroda.

TABLE No. 17—*contd.*

Origin	Commodities	Tonnage of export traffic		
		Total of all modes of transport	Moved by rail including quick transit service	Moved by quick transit service
1	2	3	4	5
Bangalore ..	Fruits—preserved, cotton textiles, engineerin ggoods, artware.	1,597	2	....
Amritsar	Oil-cake, tea, spices ..	26,344	26,178	2,648
Jullundur ..	Engineering goods ..	1,858	191	191
Ludhiana ..	Engineering goods ..	1,536	980	980
Coimbtore	Textile yarn ..	434	..	..
Madras ..	Cotton textiles, readymade garments.	5,698	55	..
Madurai ..	Cotton textiles ..	9	..	..
Kanpur ..	Crude animal material, cotton textiles, oil-cake.	21,368	19,818	12
Saharanpur ..	Artware ..	763	236	236
Moradabad ..	Artware ..	2,636	2,043	1,481
Calcutta ..	Tea, cotton textiles, engineering goods, building material, floor covering.	7,914	5,712	2,531
Delhi ..	Iron and steel, engineering goods, cotton textiles, fruits and nuts, hides, readymade garments, toys, spices, yarn, artware.	14,148	7,025	1,469
	Total ..	1,40,658	85,674	11,441

The commodity-wise composition of rail movement of export goods through Bombay Port during 1969-70* is shown below:—

Commodities	Tonnage	Percentage to total through Bombay port	Average lead (Km.)
1. Oil-cake ..	1,99,659	45·6	785
2. Iron and steel ..	80,745	18·4	1,064
3. Sugar ..	45,000	10·3	N.A.
4. Crude minerals ..	39,069	8·9	896
5. Crude animal material ..	22,678	5·2	1,151
6. Textile fibres and waste ..	18,539	4·2	1,655
7. Others ..	32,230	7·4	1,188
Total ..	4,37,920	100·00	948

* Ibid.

Table No. 18 reveals the quantity and value of principal commodities arriving in Bombay from various places on different rail-routes, for export.[1]

TABLE No. 18

QUANTITY AND VALUE OF PRINCIPAL COMMODITIES ARRIVING IN BOMBAY BY DIFFERENT RAIL ROUTES FOR EXPORT, 1969-70

Route/Origin	Distance from Port (km)	Principal commodities	Tonnage	Value (Rs. in lakhs)
(1)	(2)	(3)	(4)	(5)
1. *Amritsar-Jullundur-Delhi-Baroda-Bombay—*				
Amritsar ..	1,834	Oil-cake	26,178	200·17
Dewas ..	790	Oil-cake	26,062	176·10
Ganaur ..	1,455	Iron and steel products	24,700	244·59
Abohar ..	1,652	Textile fibres and waste	8,361	297·70
Delhi ..	1,388	Cotton textiles, iron and steel products, engineering goods	6,336	297·70 *(97·94)
Ratlam ..	653	Crude animal materials	5,603	64·92
Indore ..	707	Iron and steel products	5,005	37·43
Jagadhri ..	1,534	Paper	3,541	43·06
Rajapura ..	1,612	Crude animal materials	2,773	31·18
Gaziabad ..	1,408	Iron and steel products	2,209	21·87
Chandigarh ..	1,632	Textile fibres and waste	1,226	45·56
Ludhiana ..	1,698	Engineering goods	980	48·33
Giddarbha ..	1,607	Textile fibres and waste	962	41·03
Jullundur ..	1,755	Toys, engineering goods	190	45·38
Moradabad ..	1,477	Artware	..	*(291·56)
Saharanpur ..	1,569	Artware	..	*(33·60)
2. *Bhatinda-Ganganagar-Kankroli-Jaipur-Ahmedabad-Bombay—*				
Bhilwara ..	869	Crude minerals	30,069	30·03
Ahmedabad ..	492	Oil-cake, cotton textiles, iron and steel products	22,308	412·10
Sangaria ..	1,482	Textile fibres and waste	5,003	192·16
Baroda ..	392	Iron and steel products	2,603	21·58
Bhatinda ..	1,579	Textile fibres and waste	2,504	345·62
Jaipur ..	1,117	Perfumery	2,114	40·78
Wankaner ..	696	Building materials, cotton textiles	1,220	13·16
Kankroli ..	942	Mica waste	1,140	0·48
Ganganagar ..	1,523	Textile fibres and waste	658	38·22
Deesa ..	653	Crude animal materials	453	6·20
Gosunda ..	852	Crude animal materials	340	4·65

[1] *Survey of the Domestic Transport of India's Export Cargo,* May 1971, Vol. II, Operations Research Group, Baroda.

*Figures in parenthesis give only value of artware export.

TABLE No. 18—*contd.*

Route/Origin	Distance from Port (km)	Principal commodities	Tonnage	Value (Rs. in lakhs)
(1)	(2)	(3)	(4)	(5)
3. *Kanpur-Allahabad-Satna-Itarsi-Bhusawal-Bombay—*				
Kanpur ..	1,348	Crude animal materials, oil-cake	19,784	198·51 *(4·75)
Satna ..	1,180	Engineering goods	956	46·46
Gwalior ..	1,255	Cereals	908	7·96
Fatehgarh ..	1,624	Cotton textiles	498	7·27
4. *Howrah-Nagpur-Bhusawal-Bombay—*				
Akola ..	584	Oil-cake	51,227	374·26
Dhule ..	385	Oil-cake	38,407	128·02
Amravati ..	673	Oil-cake	15,616	84·53
Badnera ..	663	Oil-cake	12,932	94·18
Pulgaon ..	729	Cotton textiles	372	27·56
Tumsar ..	917	Ferro-manganese	10,000	73·00
Bhilai ..	1,102	Iron and steel products	10,000	65·00
Calcutta ..	1,964	Tea	5,711	297·48
Kanhan ..	856	Iron and steel products	5,000	49·50
Jamshedpur ..	1,718	Iron and steel products	3,235	26·43
Kamptee ..	852	Crude animal materials	2,037	27·90
Ballarshah ..	892	Paper	1,721	23·06
5. *Madras-Guntakal-Bangalore-Pune-Bombay—*				
Devangere ..	871	Oil-cake	13,400	71·42
Raichur ..	691	Oil-cake	5,276	44·85
Amarnath ..	60	Chemicals	2,206	9·00
Cochin ..	1,830	Tea	988	103·56
Dandeli ..	704	Paper	784	8·11
6. *Others—* ..		Sugar	45,328	561·51 *(2·15)

*Figures in parenthesis give only value of artware export.

(*iii*) *Bombay Port Trust Railway* : When the traffic between the port and the hinterland developed, the two main railways G.I.P. and the B.B. & C.I. laid out capacious goods yards in close proximity to and connected with the Prince's and Victoria Docks by three sidings crossing the Frere Road. As these sidings were capable of accommodating only a fraction of the traffic, the bulk of traffic had to be conveyed from ship to rail and *vice versa* by the cumbersome and expensive method of transportation by bullock carts which involved double handling and storage. The arrangements for connecting the goods yards of the main railways with dock sidings were extremely defective. Therefore a scheme for the

construction of port railway was mooted in 1894. The Bombay Port Trust railway is connected to the broad-gauge main lines of the Central and Western Railways at its interchange railway yard at Wadala. The railway runs for about 11 kilometres of straight route between Ballard Pier and Wadala. The Bombay Port Trust railway serves the docks as well as the important installations and factories on the port trust estates. It handles over 4 million tonnes of traffic annually which represents about 60 per cent of total rail-borne goods traffic of Bombay city.

Table No. 19 gives the statistics* of inward and outward movement (by rails) of important commodities into and from Bombay Port during 1970-71 and 1975-76.

TABLE No. 19

INWARD AND OUTWARD MOVEMENT (BY RAILS) OF IMPORTANT COMMODITIES INTO AND FROM BOMBAY PORT DURING 1970-71 AND 1975-76

(Figures in Quintals)

Commodities	1970-71		1975-76	
	Inward	Outward	Inward	Outward
(1)	(2)	(3)	(4)	(5)
1. Animals (In numbers)—				
(a) Cattle excluding sheep and goats	560	54	1,748	30
(b) Horses, ponies etc. ..	19	....	10	....
(c) Sheep and goats ..	328	....	99	20
(d) Other animals ..	....	....	13,447	852
2. Bones	2,29,902	266	1,84,925	566
3. Bricks ..	1,13,929	2,387	1,16,157	1,313
4. Cement ..	23,19,552	3,716	44,38,114	16,067
5. Coal and coke ..	27,59,738	26,241	23,13,648	3,425
6. Coffee ..	3,295	1,094	3,377	124
7. Cotton twist and yarn—				
(a) Indian ..	68,670	46,045	12,955	32,902
(b) Foreign ..	1,826	2,635	1,071	1,028
8. Cotton piecegoods—				
(a) Indian ..	62,363	5,83,887	69,489	3,64,473
(b) Foreign ..	273	1,078	433	6,915
9. Myrobalans ..	345	1,853	2,564	1,228
10. Fruits-dried ..	27,468	32,736	33,979	22,079
11. Glass ..	98,437	61,657	90,020	12,504

* The Directorate General of Commercial Intelligence and Statistics, Ministry of Commerce, Govt. of India, Calcutta.

TABLE No. 19—*contd.*

Commodities	1970-71		1975-76	
	Inward	Outward	Inward	Outward
(1)	(2)	(3)	(4)	(5)
12. Grain, Pulses and Flour—				
(*a*) Gram and gram products	9,80,922	35,024	7,24,810	24,693
(*b*) Pulses other than gram	13,09,936	76,635	9,64,894	64,449
(*c*) Maize ..	1,05,553	2,10,849	95,160	76,833
(*d*) Jowar ..	36,465	4,936	9,38,227	4,11,394
(*e*) Bajra ..	6,62,790	456	3,36,982	2,837
(*f*) Millets ..	20,884	8,143	2,829	24,90,470
(*g*) Rice in the husk ..	1,19,054	3,874	3,554	4,908
(*h*) Rice not in the husk	21,88,146	97,477	11,85,584	45,967
(*i*) Wheat	10,05,773	24,69,878	5,21,342	81,78,981
(*j*) Wheat flour ..	2,676	1,16,228	2,021	1,34,381
(*k*) Other sorts ..	4,47,628	39,401	6,06,682	2,09,333
13. Hemp (Indian) ..	3,003	1,700	255	185
14. Hides, raw ..	4,406	2,505	9,842	462
15. Skins, raw.. ..	7,957	1,068	4,028	37
16. Hides and skins, tanned and leather.	23,585	10,310	10,720	9,814
17. Jute—raw (loose) ..	677	380	1,027	8
18. Jute—raw (pucca bales) ..	1,942	591	1,063	302
19. Gunny bags and cloth ..	3,47,556	28,385	4,20,323	22,865
20. Iron and steel bars, sheets etc.	54,13,742	17,42,566	3,46,076	19,49,832
21. Lac of shellac ..	994	329	2,632	48
22. Lime and lime-stone ..	2,46,241	1,498	1,47,811	1,272
23. Manganese ore ..	2,78,650	11	741	2
24. Oil-cakes—				
(*a*) Castor ..	13,327	1,02,405	17,460	1,02,816
(*b*) Others ..	22,54,454	1,67,372	38,05,743	84,395
25. Kerosene oil ..	58,120	9,11,698	1,04,802	4,75,302
26. Vegetable oils—				
(*a*) Castor ..	79,641	1,994	2,82,707	786
(*b*) Coconut ..	3,023	41,008	5,180	20,257
(*c*) Groundnut ..	85,292	7,821	68,401	22,254
(*d*) Others ..	1,26,875	7,29,200	3,17,329	80,670
27. Oil-seeds—				
(*a*) Castor ..	1,43,122	859	1,47,520	2
(*b*) Cotton ..	3,79,208	5,444	2,41,139	821
(*c*) Groundnut ..	3,49,718	11	1,83,565	2,418
(*d*) Linseed ..	53,861	672	1,84,726	22
(*e*) Rape and mustard	10,902	978	12,777	138
(*f*) Til or jinjili ..	15,793	695	1,25,996	1,390
28. Ghee ..	144	1,950	18	4,026

TABLE No. 19—*contd.*

Commodities (1)		1970-71 Inward (2)	1970-71 Outward (3)	1975-76 Inward (4)	1975-76 Outward (5)
29. Rubber—raw	..	24,947	5,980	772	1,357
30. Salt	..	51,419	56,731	2,82,187	92,424
31. Sugar	..	24,33,993	3,084	30,18,674	2,015
32. Khandsari	..	2,28,636	254	17,402	175
33. Gur, Jaggery	..	3,41,592	1,744	3,48,079	790
34. Molasses	..	19,264	43	3,89,419	202
35. Tea	..	1,89,458	603	1,27,193	1,186
36. Tiles	..	16,113	24,042	25,522	12,902
37. Tobacco	..	36,000	1,158	14,654	3,750
38. Teakwood	..	77,118	9,664	1,00,005	519
39. Other timber	..	15,33,288	1,05,630	15,33,096	1,25,552
40. Wool—raw	..	9,857	67,974	6,624	27,957
41. Raw cotton lint—					
(*a*) Indian	..	4,90,266	47,495	8,22,375	30,208
(*b*) Foreign	..	3,866	15,063	6,839	562
42. Kapas	..	25,920	22,457	20,960	57,072

The total volume of through traffic from and to the trunk railways registered a fall of about 2·38 lakh tonnes during 1980-81, as compared to the volume of 3·35 lakh tonnes during 1970-71. The decrease was mainly due to the fall in traffic in commodities, such as, asbestos, fibres, chemicals, fertilisers, iron and steel, salt, sulphur, molasses, oil-cakes, cement, charcoal, raw cotton etc.

The following figures reveal the statistics of total volume of commodities unloaded *i.e.* booked from the trunk railways to B.P.T. railways and loaded by B.P.T. railway for trunk railway stations during 1970-71 and 1980-81.*

Year (1)			Volume of commodities handled: Loaded (hundred tonnes) (2)	Unloaded (hundred tonnes) (3)
1970-71	..	..	15,994	17,551
1980-81	..	..	17,253	11,697

* *Administration Reports*, 1971-72 and 1980-81, Bombay Port Trust.

Air-borne Trade (Domestic) : Air transport is the fastest means of carrying passengers and goods and speed is the key-note of all industrial, economic and other activities in modern age.

The year 1953 recorded the nationalisation of air transport in India and as a result witnessed the birth of two national air carriers, one for domestic services and another for the International services which were intended to discharge their national obligations. These corporations were Air India International and Indian Airlines. The services operated prior to nationalisation, by the private airlines, were profit oriented. The Indian Airlines Corporation operates on all important routes with national interest and the overall development of air transport in view.

Principal commodities moved by domestic air transport consist of costly commodities such as art silk goods, woollen and silk carpets, fur goods, readymade garments, jewellery, fresh fruits, perfumery, essential oils, chemicals and drugs, etc.

During 1969-70 the quantity of 4811* tonnes worth Rs. 30 crores was arrived at Santa Cruz Airport through domestic air-routes for export. The domestic airport at Bombay during 1969-70 accounted for 56·6 per cent in quantity and 54·09 per cent of value of the total imports followed by Calcutta, Madras and Delhi airports.

The following statement shows the route-wise quantity of goods carried by Indian Airlines from Bombay to various destinations and the revenue earned on the same during 1975-76 :—

Route	Weight in kg.	Revenue in Rs.
Bombay-Delhi	16,40,509	79,76,497
Bombay-Calcutta	10,05,962	66,92,149
Bombay-Bangalore	6,20,569	22,96,205
Bombay-Porbundar	5,839	11,678
Bombay-Madras	6,71,689	30,89,769
Bombay-Rajkot	84,405	1,30,985
Bombay-Goa	4,01,459	7,62,771
Bombay-Hyderabad	3,20,708	9,76,951
Bombay-Cochin	87,070	4,41,668
Bombay-Bhavnagar	41,607	60,330

* *Survey of the Domestic Transport of India's Export Cargo*, Vol. I, May 1971, Operations Research Group, Baroda.

Route	Weight in kg.	Revenue in Rs.
Bombay-Ahmedabad ..	61,242	1,19,423
Bombay-Jamnagar	85,901	1,80,373
Bombay-Pune	1,14,479	85,859
Bombay-Baroda	48,386	77,422
Bombay-Aurangabad ..	9,779	13,691
Bombay-Belgaum	27,474	49,627
Bombay-Mangalore	32,228	1,02,076
	52,59,306	2,30,67,474

Coastal Trade : Bombay assumed importance as a port of import-export trade since the middle of the 18th century. But the real impetus to the growth of trade was offered by the Cotton Boom of 1861–65 and the opening of the Suez Canal in 1869. The coastal trade was mainly carried through country crafts.[1]

In the beginning of the nineteenth century, the value of total coastal trade from Bombay amounted to Rs. 2,30 lakhs, of which the value of imports amounted to Rs. 1,28 lakhs and of exports to Rs. 1,02 lakhs. The ports of Gujarat and Cutch accounted for the largest proportion of exports and also of imports.

The principal articles of trade were raw cotton which was collected from Gujarat and Cutch for export to China; cotton piece-goods brought from Gujarat, Cutch, Bengal and Goa for export to Persian Gulf and Arabia; rice from Goa, Gujarat and Cutch; and Bengal sugar brought to Bombay for export to Persian Gulf and to various districts in the then Bombay Presidency.

The coastal trade maintained steady progress in the early thirty years of the nineteenth century, except a temporary depression in 1811-12 because of unfavourable conditions in the China market and great scarcity in Cutch and Gujarat. Again in 1827, the commercial position in Bombay was far from favourable as Calcutta monopolized much of trade and commenced to import and export the commodities directly. In spite of this, as a result of the abolition of company's monopoly in 1813, the trade in general received a considerable impetus and the coastal trade of Bombay

[1] For the history of Coastal trade see *Gazetteer of Bombay City and Island*, Vol. 1, 1909, pp. 438-45.

was valued at Rs. 5,26 lakhs in 1830-31. Between 1835 and 1850, the then Bombay Government made many efforts to enlarge both the coastal and the foreign trade by removing restrictions such as inland sugar duties in 1836 and cotton duties in 1848. However, the course of trade during this period was not smooth. By the end of 1850, the coastal trade of Bombay had advanced in value to Rs. 11,78 lakhs; of which Rs. 7,57 lakhs represented imports.

As cotton received high prices during the period of American War, Bombay enjoyed an unusual amount of prosperity during 1861-65 and both the foreign and coastal trade increased immensely. The other reason for this prosperity was the commencement of seven cotton mills in Bombay between 1854 and 1860.

Railway communications with the interior were opened up in 1867. Due to the growth of road and railway communications, the value of coastal imports rose from Rs. 3,64 lakhs in 1860-61 to Rs. 49,31 lakhs in 1870-71. From 1880 to 1906, the value of coastal trade fluctuated between Rs. 16 and 25 crores.

The pre-war average of coastal trade (1909-14) was valued at Rs. 32,30 lakhs as against the foreign trade of Rs. 1,13,15 lakhs. During 1980-81, *i.e.* after about seventy years, the value of coastal trade stood at Rs. 1,38,22 lakhs.

(*i*) *Imports* : The value of coastal imports showed a declining trend as the imports decreased considerably from Rs. 38,60,35 thousands in 1918-19 to Rs. 18,54,75 thousands in 1935-36 and again further declined to Rs. 14,40,54 thousands during 1937-38. The value of coastal exports fluctuated from Rs. 31,34,04 thousands in 1918-19 to Rs. 2,28,72 thousands in 1935-36 and then to Rs. 20,46,96 thousands in 1937-38.

In the pre-Independence period the principal commodities of trade originating from Bombay Port comprised foreign cotton-twist and yarn, Indian cotton twist and yarn, foreign as also Indian cotton piece-goods, woollen piece-goods, iron and steel bars, kerosene, salt, jowar and bajri, wheat and flour, sugar, etc., while the main articles received at Bombay Port in the pre-Independence period included coal, raw cotton, cocoanuts, copra, rice, wheat, gunny bags, liquors, spices, etc.

During 1960-61, the quantity of coastal exports and imports at Bombay amounted to Rs. 20,53,300 and 13,62,900 metric deadweight tonnes, respectively. In 1965-66, the coastal exports and imports at Bombay were 30,16,300 and 14,66,400 metric deadweight tonnes, respectively.

The comparative figures of total imports and exports for certain years are given below :

(In metric deadweight tonnes)

Year	Coastal Imports	Coastal Exports
1965-66	14,66,400	30,16,300
1970-71	13,09,800	15,83,400
1974-75	10,38,900	19,60,800
1975-76	9,73,200	13,45,200
1980-81	11,34,200	18,26,000

The decline in coastal imports and exports may be explained as the result of opening up of new rail routes and roads connecting Bombay with distant and far-off places in India.

The heavy wharfage charges, cumbersome formalities and custom regulations might also have adversely affected the coastal service as the same became unattractive to exporters, who prefer to send their goods by rail or road transport. Another reason for the decline in coastal trade, since 1965-66, may be the decline in the coastal exports of petroleum oil, decline in iron and steel imports as a result of the growth of indigenous production, decline in foodgrain imports and the virtual disappearance of the iron ore traffic as a consequence of the development of other ports for ore export. In 1980-81, the coastal imports and exports showed an increase in quantity compared to 1975-76.

Table No. 20 shows the commodity-wise break up of coastal imports into Bombay Port.

The commodity-wise coastal imports in Bombay Port also varied from 1970-71 to 1975-76 and again in 1980-81. The imports of building material decreased from 6,55,600 metric deadweight tonnes in 1970-71 to 3,46,000 metric deadweight tonnes in 1975-76 and to 2,47,200 metric deadweight tonnes during the year 1980-81.

The building material imported in Bombay from different ports in India accounted for 50.05 per cent of total imports in 1970-71; and the same decreased by 35.59 per cent in 1975-76, and further by 21.79 per cent in 1980-81.

The quantity of imports of metals and metal products increased from 11,100 metric tonnes in 1970-71 to 23,600 metric tonnes in 1974-75, while it declined to 7,300 metric tonnes in 1975-76 and further to 600 metric tonnes in 1980-81. The quantity of salt accounted for 13.32 per cent of total imports in 1970-71, 20.71 per cent in 1974-75 and 21.44 per cent in 1975-76. Even though the percentage of salt imported in 1975-76, showed an increasing trend in 1975-76, the actual figures reveal the decline from 2,15,200 metric tonnes in 1974-75 to 2,08,800 metric tonnes in 1975-76. In 1980-81, the import of salt further decreased to 1,01,700 metric tonnes accounting for 8.66 per cent of the total coastal imports in Bombay Port.

TABLE No. 20

COASTAL IMPORTS (DOMESTIC) INTO BOMBAY PORT TRUST[1] (DOCKS AND BUNDERS COMBINED) IN METRIC TONNES

(Rounded off to hundred)

Commodities	1970-71	1975-76	1980-81
1. Building material	6,55,600	3,46,400	2,47,200
2. Chemicals	22,500	16,100	15,100
3. Clay	44,600	6,500	....
4. Copra	35,100	3,900	....
5. Coir and coir products ..	2,100	....	....
6. Cocoanut	10,100	....	....
7. Cotton-raw	700	....	....
8. Dates	400	....	....
9. Drugs and medicines ..	1,000	....	....
10. Fertilizers	100	....	19,300
11. Earth and earthenware ..	....	9,900	7,500
12. Fish—dried and fresh ..	35,300	45,400	17,100
13. Foodgrains	300	300	5,000
14. Foodstuffs N. O. S. ..	500	1,100	....
15. Fruits—dried and fresh ..	1,500	800	....
16. Machinery N. O. S.[2]. ..	100	400	....
17. Gunnies and hessians ..	8,600	....	....
18. Metals and metal products ..	11,100	7,300	600
19. Oilseeds	11,400	12,200	100
20. Oil and fats N. O. S. ..	16,300	900	100
21. Paper and paper products ..	200	....	....
22. Salt	1,74,500	2,08,800	1,01,700
23. Rubber-raw	21,300	5,500	....
24. Wood and timber	11,40,600	1,28,800	60,700
25. Fibres—synthetic ..	100	....	....
26. Miscellaneous	2,21,300	1,80,700	6,59,800
Grand Total ..	24,15,300	9,75,000	11,34,200

(*ii*) *Exports* : The total coastal exports from Bombay to other centres in India though increased in 1974-75 over those in 1970-71 they declined in 1975-76. However the quantity of exports of different commodities recorded varied changes. The coastal exports of fertilisers were not specifically mentioned in 1970-71 statistics, but the same formed a large amount in 1974-75 (22,600 tonnes).

The exports of commodities, such as, building materials, chemicals, cotton, drugs and medicines, foodgrains, metals and metal products, spices including pepper, oil-seeds, etc., showed declining trend. On the other hand, a very few commodities such as asphalt, bitumen, pitch tar, and creosote, recorded an increase from 8,100 tonnes in 1970-71 to 12,700 tonnes in 1974-75 and again to 24,000 tonnes in 1975-76. The commodities

[1] *Annual Administration Reports*, Bombay Port Trust; 1971-72, 1976-77 and 1981-82.
[2] Not otherwise specified.

grouped under miscellaneous recorded the highest percentage of total coastal exports, and the percentages to total exports under this group during 1970-71, 1975-76 and 1980-81 were 90.48, 94.80 and 98.88, respectively.

Table No. 21 shows the statistics of coastal exports from Bombay Port.

TABLE No. 21

STATISTICS OF COASTAL EXPORTS FROM BOMBAY PORT (METRIC TONNES)

(Figures rounded off to hundred)

Commodities	1970-71	1975-76	1980-81
1. Asbestos and asbestos material..	100	....	....
2. Asphalt, bitumen, pitch tar and creosote	8,100	24,000	1,300
3. Beverage and drinks—non-alcoholic	600	....	100
4. Bicycles and bicycle parts	....	....	....
5. Building materials	8,400	1,800	800
6. Chemicals	6,300	1,100	100
7. Cotton	2,700	300	....
8. Drugs and medicines ..	800	....	....
9. Dyes and colours of all kinds ..	200	....	....
10. Fodders	1,700	1,200	900
11. Earth and earthenware ..	....	100	....
12. Foodgrains	49,800	14,900	1,600
13. Foodstuffs N.O.S.	1,700	200	400
14. Fruits and vegetables	7,100	2,600	1,500
15. Gunnies and hessians, jute manufactures and hemp.	4,700	1,400	....
16. Fertilisers	....	9,100	10,600
17. Glass and glass products ..	....	100	....
18. Instruments etc.	100	100	100
19. Lac, gums and resins ..	900	400	100
20. Leather and leather Mfgs. ..	....	....	....
21. Machinery N.O.S. ..	600	300	....
22. Manures	18,300	....	....
23. Metals and metal products ..	28,600	4,300	800
24. Oil-seeds	1,700	700	1,900
25. Oil and fats N.O.S. ..	600	300	....
26. Paints and paint materials ..	300	....	100
27. Spices including. pepper ..	1,600	600	....
28. Sugar	500	400	....
29. Textiles	400	100	....
30. Woodpulp	....	4,500	....
31. Miscellaneous	14,32,700	12,76,300	18,05,700
Grand Total ..	15,78,500	13,44,800	18,26,000

FORWARD TRADING

Futures trading plays a key role in the marketing of many important agricultural commodities and processed products.

Apart from U.S.A. and U.K., India is a large country which has had active futures markets over a long period. As soon as the cotton exchanges were established in U.K. and the U.S.A. (1880), the cotton merchants in Bombay followed suit. Quite a large proportion of the Indian cotton crop found its way to Bombay and the city became the largest cotton market in the East. After the American Civil War, in addition to this spot trade, a good deal of futures business was conducted on a large scale. But the first step in the evolution of an organised futures market was taken with the establishment of Bombay Cotton Traders' Association in 1875, by the buyers who were mostly Europeans. Before the establishment of this association, the trading was erratic and uncontrolled. Soon-afterwards, a rival body known as the Bombay Cotton Exchange which was predominantly Indian, was set up. However, the dissatisfaction on the part of the dealers led to the emergence of a third body in 1915, called the Bombay Cotton Brokers' Association, mainly for regulation of futures business.

In 1918, the Government of India constituted a Cotton Contracts Committee to control the cotton trading in Bombay. A clearing house was established and periodical settlements were effected. In 1919, the Committee was replaced by a Cotton Contracts Board which in turn founded a central cotton association in 1922 under the name of East India Cotton Association.

In oil-seeds, a futures market was established in Bombay in 1900. Subsequently, numerous other futures markets in oil-seeds came into existence in Gujarat, Saurashtra and Punjab. A futures market in bullion was also established in Bombay in 1920.

Prior to World War II, forward trading in this country was carried on in various agricultural commodities such as cotton, grains, oil-seeds, jute, spices, sugar, shellac, etc., and in non-agricultural commodities such as bullion, metals, cotton yarn and cloth, jute goods etc. During the early years of World War II, as a result of shortages, the prices of various commodities rose to high levels. The Government of India, hence issued orders under the Defence of India Act prohibiting forward trading in several commodities such as raw cotton, cotton cloth and yarn, oil-seeds, vegetable oils and oil-cakes, foodgrains, spices, sugar and gur, etc. Some of these orders under the Defence of India Act, in respect of foodgrains, edible oil-seeds and oils, raw cotton and spices were kept in force under the Essential Supplies (Temporary Powers) Act, 1946, and similar orders about cotton-seed and

sugar were issued under the latter Act. In the case of raw cotton only, a general exemption was granted, subject to certain conditions, with respect to forward trading conducted under the auspices of the East India Cotton Association, Bombay.

Among the States, Bombay was the only State which had enacted legislation for the regulation of forward trading. The Bombay Forward Contracts Control Act, 1947, was a comprehensive piece of legislation empowering the State Government to regulate forward trading in commodities and securities and many of the provisions of the draft Futures Markets (Regulation) Bill had been taken from that Act.*

The draft bill alongwith the comments received from State Governments, Chambers of Commerce and the Reserve Bank of India was referred to an expert committee appointed by the Government of India in the Ministry of Commerce on 27th July 1950. One of the cardinal principles of this legislation was to cause the minimum inconvenience to legitimate business activities. After passing through various stages and references to Select Committees, the bill was ultimately passed as the Forward Contracts (Regulation) Act, 1952. This led to the establishment of the Forward Markets Commission in September 1953.

Thus, for the first time in India, the problem of regulating commodity exchanges was tackled on a countrywide basis. The Act is based on the view that strict regulation of forward trading is essential as otherwise the forward trading may lead to excessive speculation which may accentuate price fluctuations to the detriment of the interests of producers as well as consumers.

The Forward Contracts (Regulation) Act, is principally designed to exercise control over those forward contracts which have inherently an element of speculation in them and which are generally known as futures or hedge contracts. The actual day-to-day regulation of such contracts is undertaken by recognised associations. However, the Act also provides for the regulation of forward contracts requiring the actual delivery of goods, known as non-transferable specific delivery contracts, when Government considers that they are or may be misused and their regulation is necessary. The Act authorises Government to notify from time to time the commodities in which forward trading shall be regulated through recognised associations and those in which it shall be prohibited altogether. It also provides that no association shall be concerned with forward trading in any commodity except under the conditions of a certificate of registration granted by the commission. Recognised associations generally function with a degree of autonomy, but the measures imposed by them or

*_Report of the Expert Committee on the Futures Markets (Regulation) Bill_, 1950, Ministry of Commerce, Govt. of India, 1951.

regulation of hedge trading require the consent of the commission. The control is very nominal in the case of registered associations. But their fields of activity are considerably restricted by the ban imposed on forward trading in many commodities.

The main distinction is made between spot and ready contracts on the one hand and forward contracts on the other, the basis being the period of time that elapses between the signing of contract and the contemplated delivery of goods. Under spot or ready contracts, the delivery has to be taken immediately or within a specific number of days. When delivery is contemplated after a longer period of time, the contracts are called forward contracts.

As per this Act, "Forward Contract" means a contract for the delivery of goods at a future date and which is not a ready delivery contract. Forward contracts are further classified into two categories : futures contracts which are used for the purpose of hedging or speculation and specific delivery contracts which are used for marketing merchandise. In futures contracts, though delivery may be contemplated, it rarely takes place. In specific delivery contracts, on the other hand, delivery is a more common feature. Forward contract for specific delivery or specific delivery contract means a forward contract which provides for the actual delivery of specific qualities or types of goods during a specified future period at a price fixed thereby or to be fixed in the manner thereby agreed and in which the names of both the buyer and the seller are mentioned.

Specific delivery contracts are further sub-divided into transferable specific delivery contracts and non-transferable specific delivery contracts depending upon whether the contracts can change hands from one party to another. The Act defines the non-transferable specific delivery contract as a specific delivery contract rights or liabilities whereunder or under any delivery order, railway receipt, bill of lading, warehouse receipt or any other document of title relating thereto are not transferable. When the specific delivery contracts are of the transferable variety, they closely resemble futures trading. The only feature which distinguishes them from futures contracts is that if and when delivery has to be made it has to be in terms of a specified quantity instead of in terms of a prescribed unit of trading and a prescribed basis of contract. Ready delivery contract means a contract which provides for delivery and payment of price either immediately or within such period not exceeding eleven days after the date of the contract and under such conditions as the Central Government may from time to time, by notification in the *official Gazette*, specify in this behalf in respect of any goods.

Forward Markets Commission : The Commission, with headquarters at Bombay was established in September, 1953 by the Ministry of Commerce and Industry to administer the Forward Contracts (Regulation)

Act, 1952 which has among its objects, the regulation of forward contracts, the prohibition of goods and matters connected therewith. Besides, the Commission also undertakes economic measures intended to restrain steep rise or fall in prices of regulated commodities in which forward trading is permitted during that period.

The functions of the Commission are wide as they include all matters arising out of the administration of the Act and such other duties and powers as may be assigned or prescribed. Broadly, the functions of the Commission fall into four categories *viz.*, (i) promotional and exploratory : that is the study of forward market in a particular commodity with a view to inquire whether the market should be brought within the regulatory provisions of the Forward Contracts (Regulation) Act; (ii) enquiry into claims of associations for recognition to conduct forward trading; (iii) supervision and inspection of recognised associations; and (iv) collection of factual data and keeping the different forward markets under observation. Thus, the duties of the Commission are both *quasi*-judicial as well as executive, in character.

If the Central Government is satisfied, after making such inquiry as may be necessary in this behalf and after obtaining such further information, if any, as may be required that the rules and bye-laws of a association are suitable in the interest of the trade and are in the public interest, it grants recognition to the association.

On 31st December 1976, in all 33 associations from different parts of the country were recognised under the Forward Contracts (Regulation) Act, 1952, of which 5 were in Bombay. The names of these recognised associations, and the commodities in which the forward trading was regulated by them are given below :—

Name of Association	Commodity
(1) East India Cotton Association Ltd. . .	Cotton.
(2) Bombay Oil-seeds and Oils Exchange Ltd. . .	Castor-seed, groundnut, groundnut oil, cotton-seed, linseed.
(3) Pepper and Ginger Merchants' Association	Pepper.
(4) Grain, Rice and Oil-seeds Merchants' Association.	Groundnut kernel.
(5) Vanaspati Manufacturers' Association of India, Bombay.	Groundnut oil.

As a rule, only one association is recognised for regulating forward trading in any commodity in a particular area.

Futures trading is considered as a device for protection against the price fluctuations which normally arise in the course of marketing of

commodities. Stockists, processors and manufacturers utilise the futures contract to transfer the price risk faced by them, and this use of the futures market is commonly known as hedging. Whenever a futures market is organised two markets operate side by side *viz.*, the spot and futures.

However, widely divergent views are heard from the academic circle and the world of business whenever the effects of such speculation and consequently of futures trading on commodity price levels and price variations are discussed. While a few are convinced that commodity futures trading tends to stabilise prices and reduce price variations, others not only disagree with this view, but on the contrary vigorously allege that more often than not, futures trading aggravates the price fluctuations and increases both the magnitude and the frequency of price variations.

Four types of effects on price can be had by futures trading *viz.*, average prices received by producers and paid by consumers, seasonal price variations, inter and intra-seasonal fluctuations in prices and short-term oscillations in prices. The effect of futures trading on prices can be observed from the following statistics pertaining to average yearly prices of groundnut and linseed at Bombay expressed in constant rupees for the years with little or no futures trading and for the years with futures trading.

Year	Average yearly price
A-Years with little or no futures trading	
1951–52	63·38
1952–53	80·42
1953–54	61·33
1954–55	46·67
1955–56	61·90
1960–61	76·54
1963–64	74·57
1964–65	77·80
1965–66	104·15
B-Years with futures trading	
1956–57	61·48
1957–58	62·30
1958–59	64·07
1959–60	70·22
1961–62	72·37
1962–63	66·99

The analysis of seasonal price indices[1] showed that both in groundnut and hessian, the amplitude of seasonal price fluctuations as well as

[1] A. S. Naik, *Effects of Futures Trading on Prices.*

the co-efficient variation of seasonal indices were smaller for years with futures trading than for years with little or no futures trading. In linseed, however, the statistical results disclosed that the seasonal fluctuations tended to increase in the presence of futures trading than in its absence.

The activities of the five associations recognised under the Forward Contracts (Regulation) Act, 1952 are described below.

Grain, Rice and Oil-seeds Merchants' Association : The Grain Merchants' Association which is now known as the Grain, Rice and Oil-seeds Merchants' Association was established in 1899. Before the establishment of this association in the latter half of the nineteenth century, there was no commercial body worth its name to control grain, and oil-seeds trade in the city of Bombay. In the beginning, the ready trade in grain and all kinds of oil-seeds was regulated by the association. However, with the passage of time, the necessity to sell forward position was felt and in the year 1911, with the co-operation of buyers who were mostly Europeans, the forward delivery contracts of almost all kinds of oil-seeds like groundnut seeds, linseeds, castorseeds etc., and foodgrains like wheat, jowar, lentils, gram, etc. were formulated. The contracts were at seller's option and the sellers were allowed to give delivery of the goods on any day from the date of the contract. The future delivery date was stipulated to enable the sellers to fetch goods from upcountry centres. But these specific forward delivery contracts had to be suspended when the Bombay Forward Contracts Control Act, 1947 was applied to the trade of oil-seeds in the city of Bombay on the 19th December 1950. Till that time, this was the only association in the city of Bombay, under whose auspices, the forward delivery contracts in oil-seeds were traded.

In the year 1931 the hedge contracts for cotton seeds and groundnut seeds were introduced in Bombay market. These hedge contracts were suspended in the year 1943, when futures trading was banned by the Government of India.

In 1955, the Forward Contracts (Regulation) Act, 1952 was applied to oil-seeds trade in Bombay and the association started regulating non-transferable specific delivery contracts in groundnut seeds, linseed, castor-seed, etc. In 1960, the association was granted registration by the Forward Markets Commission for regulating contracts in principal varieties, such as, oil-seeds and oil-cakes in the year 1965. Even though, the association has been recognised by the Government of India to regulate futures trading in groundnut kernels, at present futures as well as forward specific delivery business in groundnut are banned by the Government since last few years. The association has its constitution like that of a limited company, and has also formulated trading bye-laws.

The number of members of the association during 1979-80 stood at 578 who were generally the wholesalers. The trading in oil-seeds and grains is mostly concentrated in Bhat Bazar area at Mandvi and Dana Bunder. The merchants who actually deliver or receive delivery of at least 8,000 bags per year and pay subscription on them at a fixed rate are enrolled as ordinary members of the association. Of course, those businessmen who cannot reach this limit are allowed to be enrolled as associate members. Besides, the association enrolls brokers and *mukadams* under the rules and regulations of the association.

The association has an arbitration board which arbitrates in trade disputes submitted by its members.

The weekly groundnut seed rates in Bombay on certain dates are show in the following statement :—

(Price in Rupees per 50 kg.)

Date	Variety			
	Khandesh	Khandesh Quality	Madras	Kanpur Bold
4th October 1976 ..	....	172.00	171.00	168.00
11th October 1976 ..	130.00	179.00	....	....
18th October 1976 ..	156.00	155.00	....	....
25th October 1976 ..	156.00	155.00	....	....
1st November 1976 ..	162.00	161.00	....	....
8th November 1976 ..	163.00	162.00	....	....
15th November 1976 ..	169.00	168.00	....	....
22nd November 1976 ..	180.00	179.00	....	....
29th November 1976 ..	176.00	175.00	....	....
31st December 1976 ..	180.00	....	....	....
22nd October 1979 ..	207.00	205.00	....	....
12th November 1979 ..	208.00	207.00	....	....
19th November 1979 ..	208.00	207.00	....	....
26th November 1979 ..	215.00	214.00	....	....
3rd December 1979 ..	218.00	218.00	....	....
10th December 1979 ..	223.00	222.00	....	....
17th December 1979 ..	217.00	216.00	....	....
24th December 1979 ..	213.00	....	217.50	....
31st December 1979 ..	215.00	....	212.50	....

The following statement shows the highest and lowest ready prices of groundnut kernels in Bombay during 1976-77 and 1979-80 :—

Year (November to October)	Highest/ Lowest	Date	Groundnut Kernels (Karad Bold) (Rs. per 100 kg.)
1976–77 ..	Highest	28th December 1976 ..	358.00
	Lowest	16th December 1976 ..	316.00
1979–80 ..	Highest	14th July 1980 ..	512.00
	Lowest	12th January 1980 ..	390.00

Pepper and Ginger Merchants' Association: The association was established in 1937, and in 1963 it received the sanction from the Forward Markets Commission for forward trading in pepper.

The membership of the association comprises dealers, exporters and associate members. At the end of the year 1976 (*i.e.*, upto 22nd October 1976); there were on the roll of the association, 38 dealers, 14 exporters and 22 associate members. The total number of brokers registered with the association upto the end of the year 1976 was 61. The number of member traders dealing in forward trading changes with existing conditions and future prospects of the trade. About fifty percent of the member traders deal in forward trading in pepper.

The Government of India has authorised the association to issue certificates of origin in respect of shipments of spices and seeds for export. During the year 1975-76, the association issued 20 certificates to the exporters.

The following Table No. 22 gives details regarding futures trading in pepper undertaken by the association in a few years.

TABLE No. 22

FUTURES TRADING IN PEPPER UNDERTAKEN BY THE PEPPER AND GINGER MERCHANTS' ASSOCIATION

Month ending	Delivery	Total volume of transactions (in '000 tonnes)	No. of operations holding open position				Total open position (in '000 tonnes)	Proportion of open position held by the group above 50 tonnes	
			Above below 50 tonnes	Long 50 tonnes	Above below 50 tonnes	Short 50 tonnes		Long	Short
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
January 1972 ..	January 1972 ..	0.7	....	....	....	....	Nil	....	....
	March 1972 ..	0.8	22	1	23	1	0.3	33.3	11.1
February 1972 ..	March 1972 ..	0.7	31	1	23	1	0.3	27.5	13.3
	May 1972 ..	0.2	7	1	12	....	0.1	50.0	....
March 1972 ..	March 1972 ..	0.8	....	....	....	....	Nil	....	....
	May 1972 ..	0.7	32	1	27	....	0.3	19.0	....
October 1976 ..	November 1976 ..	1.3	28	....	30	....	0.2	....	....
	January 1977 ..	0.4	13	....	18	1	0.2	....	40.6
November 1976 ..	November 1976 ..	0.6	....	....	....	....	Nil	....	....
	January 1977 ..	1.4	24	3	43	1	0.4	41.0	16.8
December 1976 ..	January 1977 ..	1.4	26	....	36	1	0.3	....	17.1
	March 1977 ..	0.3	9	....	7	....	0.1	....	....

The turnover of trade of the association was as follows:—

Delivery Contract	Period	Volume of transactions (sales in quintals)
November 1975	26-10-75 to 29-11-75	8,625
January 1976	16-10-75 to 31-1-76	19,575
March 1976	1-12-75 to 30-3-76	17,575
May 1976	2-2-76 to 31-5-76	20,400
July 1976	1-4-76 to 31-7-76	20,325
September 1976	1-6-76 to 30-9-76	18,200
November 1976	2-8-76 to 16-10-76	21,950
January 1977	1-10-76 to 16-10-76	850

The price of pepper in delivery contract was Rs. 1,330 on 5th November 1975, which increased to Rs. 1,410 per quintal on 27th November 1975 due to demand from Communist countries and short supplies because of damage to the crop by excessive and unseasonal rains. The rate for January 1976 delivery contract was Rs. 1,260 per quintal, which declined to Rs. 1,230 on 5th December 1975 due to arrival of new crop of pepper in the terminal markets, and increased to Rs. 1,325 per quintal on 15th December 1975 and closed at Rs. 1,270 per quintal on 31st January 1976.

March 1976 delivery contract, after opening at Rs .1,275 per quintal on 20th December 1975, declined to Rs. 1,220 per quintal on 25th February 1976 and advanced to Rs. 1,475 per quintal on 29th March 1976, and closed at Rs. 1,447 per quintal on 30th March 1976.

May 1976 delivery contract opened at Rs. 1,285 per quintal on 3rd February 1976, declined to Rs. 1,225 per quintal on 27th February 1976 and advanced to Rs. 1,535 per quintal on 2nd April 1976 due to demand from Communist countries, and closed at Rs. 1,514 per quintal on 31st May 1976.

July 1976 delivery contract, after opening at Rs. 1,485 per quintal on 6th May 1976, rose to Rs. 1780 per quintal on 15th July 1976 due to reported fall in pepper production, and closed at Rs. 1,710 per quintal on 31st July 1976.

September 1976 delivery contract opened at Rs. 1,730 per quintal on 30th June 1976 and advanced to Rs. 1,850 per quintal on 15th July 1976, and declined to Rs. 1,635 per quintal on 4th September 1976 and closed at Rs. 1,656 per quintal on 30th September 1976.

The commencement of trading in the November 1976 delivery was permitted with effect from 2nd August 1976. However the first transaction took place on 25th August 1976, at Rs. 1,697 per quintal and the

rate declined to Rs. 1,585 per quintal on 9th September 1976. The delay in the arrival of new crop of pepper pushed up the price. The rate at the close of the year was Rs. 1,820 per quintal.

January 1977 delivery contract after opening at Rs. 1,590 per quintal on 1st October 1976 declined to Rs. 1,553 per quintal on 6th October 1976, and the rate at the close of the year was Rs. 1,800.

The delivery order rates and quantity tendered for delivery against the transferable specific delivery contracts during 1975-76 are given below* :—

Contract	Delivery order rate	Quantity tendered for delivery (Quintals)
November 1975 ..	1,370	25
January 1976 ..	1,270	50
March 1976 ..	1,447	475
May 1976 ..	1,514	500
July 1976 ..	1,710	600
September 1976 ..	1,656	400

Bombay Oilseeds and Oil Exchange Ltd. : The association under the present title was established on 19th July 1976. Prior to this, it was known as the Seeds Traders' Association which was registered under the Indian Companies Act, on 12th October 1938. The name of the Seeds Traders' Association was changed to the Bombay Oilseeds Exchange Limited on 24th April 1950. The Oil Merchants' Chamber Limited which was regulating trading in vegetable oils was amalgamated with the Bombay Oilseeds Exchange Limited on 7th August 1956 and the name of the exchange was thereupon changed to the Bombay Oilseeds and Oil Exchange Limited on 8th November 1956. The Exchange was also recognised for forward trading in groundnut oilcake.

The Exchange was recognised by the then Government of Bombay for forward trading in oilseeds in 1950. The Forward Contracts (Regulation) Act, 1952 was applied to oilseeds on 25th January 1965. The Exchange has been recognised by the Government of India for forward trading in groundnut, castorseed, linseed, cottonseed, groundnut oil and groundnut cake (expeller) under the Forward Contracts (Regulation) Act, 1952. Trading in delivery contracts and ready contracts in oilseeds and oils is also being regulated by the Exchange. All forward trading in groundnut, groundnut oil, and cottonseed, have been suspended by the Government of India. Futures trading is permitted only in castorseed and linseed which are non-edible oilseeds.

* *Source.*—The Pepper and Ginger Merchants' Association Limited, *Annual Report* 1975.

The membership of the exchange comprises crushers, exporters, stockists, commission agents and brokers. At the end of the year 1963, the total number of members was 611, which decreased to 414 at the end of 1973 and stood at 416 at the end of 1975.

The members are divided into four panels *i.e.*, crushers, exporters, dealers and brokers. At the end of 1975, there were 29 members in crushers' panel, 37 in exporters' panel, 92 in dealers' panel and 258 in brokers' panel.

The exchange is a member of the (*i*) Federation of Indian Chambers of Commerce and Industry, (*ii*) Indian Merchants' Chamber, (*iii*) Indian Standards Institute and (*iv*) Central Organisation for Oil Industry and Trade. The Exchange has an up-to-date and well-equipped analytical laboratory of its own which undertakes analysis of oilseeds, oils, oilcakes and allied products at reasonable rates. The laboratory of the Exchange is recognised by the Government for the work of grading under AGMARK of vegetable oils meant for export. The survey department carries out survey of oilseeds for determining or deciding their exact quality and grade. The Government has authorised the Exchange to issue certificate of origin in respect of shipment of oilseeds, oils and oilcakes exported to foreign countries. During 1974-75, eleven certificates were issued by the Exchange.

The terms and conditions imposed by the Forward Markets Commission on the Exchange in respect of hedge contracts 1975-76 are given in Table No. 23.

TABLE No. 23

TERMS AND CONDITIONS IMPOSED BY THE FORWARD MARKETS COMMISSION IN RESPECT OF HEDGE CONTRACTS IN 1975-76

Hedge contracts	Date of the order giving permission and mentioning the terms and conditions	Date of commencement of the hedge contracts	Limit on open position for every member and non-member in metric tonnes.	Margin on long open position				Exemption to the exporters in the hedge contracts against their export commitments of castor oil, linseed oil and linseed cake from	
				First marginal line on closing rate of (Rs.)	Rate of margin per quintal (Rs.)	Second marginal line on closing rate of (Rs.)	Rateof margin per quintal (Rs.)	Payment of margin granted or not	Limit of 2,000 metric tonnes on open positi on granted or not
1	2	3	4	5	6	7	8	9	10
Castorseed—									
April 1975	.. 22-8-74	23-8-74	2000	230	46	250	100	Granted	Granted
July 1975	.. 29-3-75	31-3-75	2000	200	40	220	90	Do.	Do.
September 1975	.. 13-6-75	17-6-75	2000	190	35	..	..	Do.	Do.
April 1976	.. 19-8-75	20-8-75	2000	180	35	..	..	Do.	Do.
Linseed									
April 1975	.. 24-8-74	30-8-74	2000	350	70	375	150	Do.	Granted by order, dated the 6th February 1975.
July 1975—	.. 29-3-75	31-3-75	2000	280	56	300	120	Do.	Granted.
September 1975	.. 13-6-75	17-6-75	2000	260	50	..	..	Do.	Do.
April 1976	.. 19-8-75	20-8-75	2000	250	50	..	..	Do.	Do.

Note:—No margin free limit was granted.

The volume of trading in castorseed hedge contracts and linseed hedge contracts made by the Exchange during the year 1974-75 are shown below separately :—

(*i*) *Castorseed Hedge Contracts*

(Figures in '000 tonnes)

Month ending		April 1975	July 1975	September 1975	April 1976
November 1974	..	53·7	....	....	....
December 1974	..	64·2	....	....	....
January 1975	..	101·8	....	....	....
February 1975	..	122·6	....	....	....
March 1975	..	63·6	4·3	....	....
April 1975	..	8.5	78·4	....	....
May 1975	..	....	51·9	....	....
June 1975	..	....	43·6	8·7	....
July 1975	..	....	9·0	115·5	....
August 1975	..	....	....	89·5	19·0
September 1975	..	....	....	4·2	87·2
October 1975	..	....	....	....	118·8
Total	..	414·4	187·2	217·9	225·0

(*ii*) *Linseed Hedge Contracts*

(Figures in '000 tonnes)

Month ending		April 1975	July 1975	September 1975	April 1976
November 1974	..	33·1	....	....	....
December 1974	..	63·5	....	....	....
January 1975	..	153·3	....	....	....
February 1975	..	201·8	....	....	....
March 1975	..	149·2	7·3	....	....
April 1975	..	6·7	119·8	....	....
May 1975	..	....	92·7	....	....
June 1975	..	....	100·7	636·3	....
July 1975	..	....	6·9	183·6	....
August 1975	..	....	....	99·4	23·2
September 1975	..	....	....	11·9	171·4
October 1975	..	....	....	....	222·1
Total	..	607·6	327·4	931·2	416·7

The following statement gives the average prices of groundnut oil in Bombay during October to November crop-year from 1962-63 to 1974-75:—

Year	Average price per tonne (Rs.)
1962-63	1,785
1963-64	2,138
1964-65	2,445
1965-66	3,988
1966-67	4,155
1967-68	2,957
1968-69	4,089
1969-70	4,685
1970-71	4,330
1971-72	4,013
1972-73	6,712
1973-74	8,096
1974-75	7,619

The castorseed hedge contract of April 1975 commenced on 23rd August 1974. On 13th November 1974, the ruling price of castorseed April 1975 hedge contract was Rs. 216·25.[1] The highest price of Rs. 235 was recorded on 26th November 1974 and the lowest of Rs. 164·00 on 21st February 1975. The due date rate was fixed at Rs. 187.

The castorseed July 1975 hedge contract commenced on 31st March 1975 at Rs. 178·25. The highest price of Rs. 202·75 was recorded on 16th April and the lowest of Rs. 164·00 on 10th July 1975. The rate on the due date was fixed at Rs. 178·00.

The castorseed September 1975 hedge contract commenced on 17th July 1975 at Rs, 180·25. The highest price of Rs. 187·87 was recorded on 29th July 1975 and the lowest of Rs. 145·50 on 29th September on 1975. The due date rate was fixed at Rs. 145·00.

The linseed April 1975 hedge contract commenced on 30th August 1975. On 13th November 1974 the ruling price of the linseed April 1975 hedge contract was Rs. 341·25. The highest price of Rs. 345·50 was recorded on 26th November 1974, and the lowest of Rs. 224·50 on 21st February 1975. The due date rate was fixed at Rs. 266·00.

The linseed July 1975 hedge contract commenced on 31st March 1975 at Rs. 245·00. The highest price of Rs. 282.50 was recorded on 16th April 1975, and the lowest of Rs. 213·00 on 5th July 1975. The due date rate was fixed at Rs. 242·00.

[1] Rates in this account are in Rs. per quintal.

The linseed September 1975 hedge contract commenced on 17th June 1975 at Rs. 244·25. The highest price of Rs. 256·00 was recorded on 23rd August 1975 and the lowest of Rs. 215·50 on 7th July 1975. The due date rate was fixed at Rs. 235·00.

The castorseed April 1976 hedge contract commenced on 20th July 1975 at Rs. 170·25. The highest price of Rs. 172·00 was recorded on 23rd August 1975 and the lowest of Rs. 141·50 on 30th September 1975. At the end of the year, the ruling price for this contract was Rs. 151.25.

The linseed April 1976 hedge contract commenced on 20th August 1975 at Rs. 231·00. The highest price of Rs. 237·50 was recorded on 26th August 1975 and the lowest of Rs. 195.50 on 30th September 1975. At the end of the year, the ruling price for this contract was Rs. 203·50.

The following data reveals the position of futures trading in castorseed at the Bombay Oilseeds and Oil Exchange :—

Month ending	Delivery	Total Volume of transactions (in '000 tonnes)	Number of operations holding open position (in tonnes)				Total open position (in '000 tonnes)	Proportion of open position held by the group above 500 tonnes (per cent)	
			Long		Short				
			Below 500	Above 500	Below 500	Above 500		Long	Short
1	2	3	4	5	6	7	8	9	10
October 1976	April 1977	107·9	97	3	130	1	9.8	26·7	15·2
November 1976	April 1977	88·1	38	7	130	2	11.1	78·4	18·8
December 1976	April 1977	82·5	18	6	152	6	16.6	88·2	43·2

The details of futures trading in linseed at the Exchange are given below :—

Month ending	Delivery	Total volume of transactions (in '000 tonnes)	Number of operations holding open position				Total open position (in '000 tonnes)	Proportion of open position held by the group above 200 tonnes (per cent)	
			Long		Short				
			Below 200 tonnes	Above 200 tonnes	Below 200 tonnes	Above 200 tonnes		Long	Short
1	2	3	4	5	6	7	8	9	10
October 1976	April 1977	160·4	103	12	232	14	16.7	50·5	40·5
November 1976	April 1977	115·4	136	13	177	10	12.1	49·5	32·3
December 1976	April 1977	89·2	113	6	101	8	7.5	32·6	35·5

East India Cotton Association : The association was established in 1922 to provide and maintain suitable premises for cotton exchange in the city of Bombay and elsewhere in India and to regulate administration

of the same; to provide forms of contracts and to regulate contracts; to settle by arbitration or otherwise disputes among cotton merchants; to establish and maintain clearing house; and to regulate the import and export of cotton and generally to control, and regulate the cotton trade in Bombay and elsewhere in India. The membership of the Association as on 21st March 1981 was 358.

The association is recognised under the Forward Contracts (Regulation) Act, 1952 on a permanent basis in respect of contracts in Indian cotton in the whole of India. However, the futures contracts otherwise known as hedge trading in cotton is not permitted since 1966. Transferable contracts which end in delivery and known as transferable specific delivery contracts which were allowed to be traded in Bengal Deshi have also not been permitted since 1976-77. At present (1981) non-transferable specific delivery contracts in cotton are permitted by the association with the concurrence of Forward Markets Commission. A clearing house is maintained for settlement of weekly/fortnightly differences and for passing on the tenders during delivery months. The surveys and appeal on Indian as well as foreign cotton are carried out under the blind survey system by whole-time paid sworn surveyors. The association is a signatory to the Universal Cotton Standards Agreement.

The trading in transferable specific delivery contracts by the association during 1971 and 1975 were as follows :—

Month	Cotton in bales	
	1971	1975
January	N.T.*	4,450
February	....	900
March	....	2,200
April	....	2,800
May	....	N.T.
June	....	600
July	....	N.T.
August	400	N.T.
September	4,500	400
October	8,700	700
November	10,800	1,000
December	17,000	200
Total ..	41,400	13,250

* N.T. = Non-Transferable.

There was no trading in cotton at Bombay during the period February 1971 to July 1971.

During 1971, 1,26,782 bales of cotton was purchased and 1,31,348 bales of cotton was sold by the association.

The details of trading in cotton by the association under the non-transferable specific delivery contracts during April 1980 to September 1980 are shown below :—

(In bales of 170 kg. each)

Delivery	April 1980	May 1980	June 1980	July 1980	August 1980	September 1980
April 1980 ..	33,645	....	....	....	....	....
May 1980 ..	10,137	17651	....	....	....	....
June 1980 ..	6,325	8,866	12,035*	....	....	....
July 1980 ..	4,600	2,760	8,580*	13,463	....	....
August 1980 ..	....	1,200	4,752*	7,447	11,589	....
September 1980 ..	....	....	....	5,750	4,358	253†
October 1980 ..	....	....	....	554	1,458	986†
November 1980 ..	....	....	....	....	2,137	2,281†
December 1980 ..	....	....	....	....	....	702†

* Revised.

† The figures are provisional and pertain to 15th September 1980.

Vanaspati Manufacturers' Association of India : The association was first constituted on an informal basis in 1936 with 8 members. During World War II, the association was recognised by the Government of India for negotiating supplies of vanaspati to the defence services and for distribution of scarce raw materials. Price control on vanaspati was introduced in October 1944. The association regularly furnished information to Government for fixing vanaspati prices. Vanaspati being the only processed oil, its prices had to be revised with changes in oil prices. In 1946, the association adopted a formal constitution as a result of which the membership increased from 21 to 51.

The association remained the primary instrument of consultation between Government and vanaspati manufacturing industry on price control, regulation of quality of vanaspati, research on vanaspati, etc.

In 1965, the Government of India decided to regulate non-transferable specific delivery contracts in groundnut oil because of their misuse for illegal speculative activities, and therefore, the association was recognised under the Forward Contracts (Regulation) Act, 1952 to regulate non-transferable specific delivery contracts of traders in groundnut oil. The association being an all-India body, the members enter into contract with any party in the country. Since October 1971 the Government suspended non-transferable specific delivery contracts in groundnut oil. The manufacturers are therefore required to buy groundnut oil only on ready delivery terms. In six years of regulation *i.e.*, from 1965 to 1971, the

members of the association had purchased 906,300 tonnes of groundnut oil under transferable specific delivery contract.

During 1976-77, the membership of the association was 64, of which eight had their factories in Bombay.

The prices of groundnut oil in 1976 are given below :—

(Rs. per tonne)

Week ending	High	Low
3rd January 1976	4,950	1,825
7th February 1976	4,525	4,400
6th March 1976	4,150	3,775
3rd April 1976	4,650	4,400
1st May 1976	4,550	4,475
5th June 1976	4,325	4,200
3rd July 1976	5,675	5,075
28th August 1976	6,450	6,450
4th September 1976	6,450	6,450
2nd October 1976	6,400	6,400
6th November 1976	6,400	6,350
4th December 1976	6,900	6,400

WHOLESALE TRADE

Bombay being the largest trading and distributing centre, the wholesale trade carried out here is also on the largest scale in the State. The peculiarity of the wholesale trade is mainly concentrated within Bombay city limits. However, a few persons are engaged in wholesale trade in western and eastern suburbs. The main reason for the concentration of wholesale trade mostly within the limits of Bombay city is the proximity of the area to railway termini of Central and Western railways and also to the Bombay Port which make the transport of bulky commodities very easy. The Airport at Santacruz, on the other hand, helps the transport of costlier or perishable goods in a short period. In the past the wholesale trade in specific commodities was concentrated only in specific areas of the city, which have remained unaffected even now.

In 1909, wholesale business in cloth was conducted mainly in Mulji Jetha Market, while that in copper at Pydhoni; in drugs at Ganeshwadi; in food-grains, sugar, ghee at Mandvi; in silver and gold on Sheikh Memon Street; and the trade in opium and machinery in Fort. There were about 40 big merchants in Bombay who used to deal in pearls.

Now, along with the old centres of wholesale trade in Bombay there is a tremendous increase in the number of centres and also in the quantity and variety of commodities traded on wholesale basis.

The wholesale trade in fruits, vegetables, mutton, eggs and flowers is mostly undertaken in municipal markets.* At present the wholesale trade in vegetables is undertaken in three municipal markets of which two are at Byculla *viz.*, Sant Gadge Maharaj Market and Sant Sawata Mandai, and one at Dadar near Plaza theatre. In addition, a private market at Byculla *viz.*, Meher Market also deals in wholesale trade of vegetables. The wholesale business in fish is undertaken in a municipal market on Palton Road *viz.*, Chhatrapati Shivaji Market; in eggs and mutton and flowers in Mahatma Jyotiba Phule (former Crawford) Market. The wholesale business in fruits is undertaken in two municipal Markets *viz.*, Jyotiba Phule Market and Sant Gadge Maharaj Market at Byculla. The wholesale trade in cloth is now undertaken in Mulji Jetha Market, Mangaldas Market, Swadeshi Market, Hindamata Cut Piece Wholesale Cloth Market and its surrounding area; tobacco on Clive Street, motor parts and accessories on Jagannath Shankarsheth Road, *i.e.*, Opera House and its vicinity, Huges Road, Queen's Road; consumer goods in 15 wholesale consumer stores; medicines at Dawa Bazar on Princess Street; food-grains and pulses at Dana Bunder near Masjid Road Station; perfumery on Mohammed Ali Road and its vicinity; hardware in Lohar Chawl, Null Bazar and Chor Bazar, Nagdevi Street and Abdul Rehman Street; jewellery in Zaveri Bazar; brass, copper and aluminium vessels at Tambakata, Mumbadevi and Mohammed Ali Road.

In addition to the aforesaid commodities, the wholesale business in a variety of articles is carried on in Greater Bombay. The following statement reveals the variety of such commodities traded on wholesale basis :

Commodities traded on wholesale basis	Wholesale trade centres in Greater Bombay
Glass bangles and plastic articles	Null Bazar, Phule Market.
Books of all types ..	Dhobi Talao, Girgaum Road, Dadabhoy Naoroji Road.
Readymade garments for children.	Zaveri Bazar, Bhuleshwar.
Cutlery	Lohar Street, Abdul Rehman Street, Jumma Masjid, Null Bazar, Chakala.
Crockery and pottery ..	Phule Market, Lohar Street, Null Bazar, Grant Road.

* For details of wholesale trade undertaken in these markets refer to a sub-section on ' wholesale markets ' in this Chapter.

Commodities traded on wholesale basis	Wholesale trade centres in Greater Bombay
Show-pieces and presentable articles.	Phule Market, Null Bazar.
Toys	Cutlery Market, Phule Market.
Dry fruits	Phule Market, Null Bazar, Grant Road, Masjid Bunder Road.
Distemper and oil paint ..	Abdul Rehman Street, Null Bazar, C. P. Tank, Masjid Bunder, Nagdevi Street, J. J. Hospital area.
Cotton	Sewri.
Film projection and Electronic goods.	Opera House.
Dyes (for dyeing cotton fibre and cloth).	Tambakata.
Coloured clay	Nagdevi Street.
Cycles and its spare parts ..	Kalbadevi Road, Dadabhai Naoroji Road.
Electrical goods	Lohar Street.
Furniture	Mohammed Ali Road, Chor Bazar.
Shoes and leather goods ..	Carnac Road, Phule Market, Bhendi Bazar, Pydhoni, Leather Bazar.
Account books	Pydhoni, Zaveri Bazar.
Mirrors	Abdul Rehman Street.
Guns	Abdul Rehman Street.
Handloom cloth	Kalbadevi Road, Prarthana Samaj, Dadabhai Naoroji Road.
Hats	Dhobi Talao, Bori Bunder, Phule Market.
Musical instruments ..	Dhobi Talao, Fort, Sandhurst Road.
Rubber packing material ..	Mohammed Ali Road, Chakala, Masjid Bunder, Phule Market.
Weights, measures.. ..	Nagpada, Mohammed Ali Road, Abdul Rehman Street.
Mats of all types	Abdul Rehman Street.
Mattresses	Phule Market.
Pipes and plumbing material ..	Nagdevi Street, Lohar Chawl, Medows Street.
Paper and cardboards ..	Sutar Chawl, Abdul Rehman Street, Parsi Galli, Kandevadi.
Artificial flowers	Phule Market, Charni Road.
Photo frames	Abdul Rehman Street.
Plywood, hardboard ..	Abdul Rehman Street.

Commodities traded on wholesale basis	Wholesale trade centres in Greater Bombay
Raincoat	Fort area, Phule Market.
Sports goods	Dhobi Talao.
Stoves	Phule Market, Pydhoni, Abdul Rehman Street, Hamam Street.
Stainless steel utensils ..	Tambakata, Mumbadevi.
Stationery	Abdul Rehman Street.
Wood of all types ..	Reay Road, Tank Bunder.
Umbrellas	Phule Market, Abdul Rehman Street, Null Bazar, Old Hanuman Galli.
Time-pieces, watches and spare parts.	Abdul Rehman Street, Bhendi Bazar, Dadabhoy Naoroji Road.
Iron suitcases	Abdul Rehman Street.
Wires and Grills of all types ..	Abdul Rehman Street, Lohar Chawl, Null Bazar.
Silk cloth (art-silk) ..	Kalbadevi.

The Maharashtra Agricultural Farm Produce Corporation which was incorporated in 1970 as a subsidiary of the State Industrial and Investment Corporation of Maharashtra Limited, became an independent organisation in 1972. Besides, the Maharashtra Agricultural Farm Produce Corporation deals in wholesale as well as retail trade of processed and unprocessed pork, poultry, buffalo meat, mutton, fruits and vegetables, fish products and canned food. The corporation links the agricultural producer with the consumer in a fair price deal. In 1977, the corporation owned 18 farm fairs and 150 dealer outlets in Greater Bombay.

As per the 1951 Census 59,031 persons were engaged in different activities of Wholesale trade in Greater Bombay. The number of persons however, decreased to 44,129 in 1961. The percentage share of workers in wholesale trade to total workers in commerce in 1951 and 1961 stood at 22 and 14.05, respectively. Even though the percentage share of workers in wholesale trade in 1961 showed a decreasing trend, it surpassed the State average of 8.5 per cent and ranked first in all the districts of the State. The 1971 Census classified the wholesale trade in five major groups and enumerated 41,270 persons* as engaged in wholesale trade in the city.

* *Census of Maharashtra*, 1971, *Industrial Classification.*

The group-wise classification of persons engaged in wholesale trade in Greater Bombay in 1971 is shown in the following statement :—

Group	Total	Percentage of workers in the group to the total in wholesale trade	Employers	Employees	Single workers	Family workers
1	2	3	4	5	6	7
(1) Wholesale trade in food, textiles, live animals, beverages and intoxicants.	11,055	26·8	3,110	5,685	1,685	575
(2) Wholesale trade in fuel, light, chemicals, perfumery, ceramics, glass.	6,150	14·9	2,010	3,145	715	300
(3) Wholesale trade in wood, paper, other fabrics, hide and skin and inedible oils.	5,780	14·0	1,060	4,090	450	180
(4) Wholesale trade in all types of machinery and equipment including transport and electrical equipment.	3,170	7·7	860	1,810	345	155
(5) Wholesale trade in food and miscellaneous manufacturing.	15,115	36·6	3,905	8,600	1,850	760
Total ..	41,270	100·00	10,945	23,330	5,045	1,970

The percentage share of workers engaged in five major groups mentioned above reveals that the wholesale trade in food and miscellaneous manufacturing ranked first 36.6 whereas the wholesale trade in all types of machinery and equipment including transport and electrical equipment ranked last (7·7) in the list. The classification of persons engaged in wholesale trade by class of work reveals that the percentage of employees to total workers stood at 56.28 which was the highest in all the groups. The class of employers *i.e.*, those who hired one or more persons accounted for 26.27 per cent of the total persons engaged in wholesale trade in Greater Bombay. The tendency to engage the family members in the activities of wholesale trade was very rarely found and accounted for only 4·77 per cent of the total. The class of single workers *i.e.*, those

who are participating in the activities of wholesale trade without employing others except casually and without the help of other members of the family except casually accounted for 12·22 per cent of the total.

The percentage of wholesale business establishments in Greater Bombay in 1971 to the establishments of wholesale trade in all the urban areas of the State in 1971, reveals the concentration of wholesale trade activities in Greater Bombay. There were in all 10,541 establishments[1] dealing in wholesale trade of various commodities as against 20,709 establishments dealing in wholesale trade in urban areas of the State. The same accounted for almost 50 per cent of the total establishments dealing in wholesale trade in urban areas of the State. This percentage reveals that Greater Bombay occupies an important position in the volume of wholesale trading in the State. The following statement shows the number of establishments[2] dealing in wholesale trade of different commodities and persons engaged therein :—

Category	Establishments					
	Total	1 Person	2-9 Persons	10-19 Persons	20 and above	persons unspecified
(1) Wholesale Trade in food, textiles, live animals, beverages and intoxicants.	4,977	661	3,888	361	66	1
(2) Wholesale trade in fuel, light, chemicals, perfumery, ceramics, glass.	1,335	118	1,077	107	33	....
(3) Wholesale trade in wood, paper, other fabrics, hide and skin and inedible oils.	615	93	451	45	26	....
(4) Wholesale trade in all types of machinery and equipment including transport and electrical equipment.	1,108	165	779	116	46	2
(5) Wholesale trade in food and miscellaneous manufacturing.	2,506	408	1,928	138	28	4

Out of 12,451 wholesale trade establishments dealing in food, textiles, live animals, beverages and intoxicants in the urban areas of the State in 1971, Greater Bombay alone accounted for 39.97 per cent. Of 1993 wholesale establishments dealing in fuel, light, chemicals, etc. in urban areas of the State, 1335 or 67 per cent were situated in Greater Bombay. A still higher percentage of 85.49 was recorded in wholesale trade establishments dealing in machinery, including transport and electrical equipment as there were 1,108 establishments in Greater Bombay, out of 1,296 in the urban areas of the State. In other two major groups, *viz.*,

[1] Census of India, Series 11-Maharashtra, Part III-B; 1971.

[2] The Census of India, 1971, Establishment Tables, defines establishments of wholesale trade as those trade places where people work in a building.

wholesale establishments dealing in wood, paper, other fabrics, hide and skin and inedible oils; and those dealing in food and miscellaneous manufacturing, Greater Bombay showed higher percentage of 54.32 and 67.35 per cent respectively.

Wholesale Markets*: The wholesale business in fruits, vegetables, fish, eggs, fowls and mutton is undertaken in various municipal markets as also in some private markets.

The wholesale trade in fruits is now undertaken in two municipal markets : Sant Gadge Maharaj Market or the Gold Mohur Castle Market, Byculla, and Mahatma Jyotiba Phule Market, formerly known as Arthur Crawford Market. The wholesale transactions of vegetables are undertaken in three municipal markets *viz.*, Sant Gadge Maharaj Market, Sant Sawata Mandai at Byculla, and Dadar (new) market, and a private market *viz.*, Meher Market.

The wholesale transactions in fish are carried in Chhatrapati Shivaji Market on Palton Road, and in eggs, fowls, and mutton in Mahatma Jyotiba Phule market.

New Dadar Market : It was established in 1963 behind Plaza theatre, and covers an area of about 1,875 sq. metres.

About 5,000 consignments of vegetables excluding fruits arrive daily in the market in bags and baskets. The vegetables mainly arrive from Pune, Saswad, Chinchwad, Jalgaon, Nasik, Delhi etc. by trucks or by railway.

The functionaries in the market include 217 licensed stall-holders, 13 *hundekaris* and brokers. The broker charges 6 to 8 per cent as commission rate and has to pay Rs. 50 per annum as licence fee. The rent charged for the stall-holder varies from Rs.185 to Rs. 600 per quarter. Besides, there are 60 spaces which are allotted to the traders on daily charges, the daily charges for space being 50 paise.

Sant Sawata Mandai : Sant Sawata Municipal wholesale market was constructed in 1968 on an area of 1,031 sq. metres near Jijamata Garden, Byculla.

Almost all types of vegetables arrive in the market from Pune, Nasik, Sangamner, Junnar, Saswad, Indore, Delhi, Ahmedabad, Bangalore, etc. Daily 6,000 bundles of vegetables of all types including pumpkin, snake gourd, elephant gourd, red pumpkin, cucumber, cabbage, carrots, etc.

* The information pertains to the year 1976.

arrive in the market. Besides, seasonal leafy vegetables such as fenugreek, coriander and radish also arrive in the market. The vegetables are sold in bulk such as a basket or a gunny bag. It is an open market and as such no *hatta* system is allowed in the market.

The market is equipped with 15 underground godowns and 15 *pedhis*. The rent of a godown varies from Rs. 180 to Rs. 340 per annum, while the rent of a *pedhi* varies from Rs. 180 to Rs. 300 per annum. Besides the market is equipped with 10 spaces given to sellers on daily charges. As many as 234 persons are given the licences to receive the commodities from 11 *hundekaris* through coolies. The rate of commission charged by the broker on the sale of commodities is 8 per cent. The broker has to pay licence fee of Rs. 250 per annum to the market authority.

The weighing charges fixed by the Municipal Corporation on the arrival of the commodities are similar to those fixed in the Gadge Maharaj market. About 100 trucks arrive daily in the market and the commodities from these trucks are distributed to three markets in Byculla and a wholesale market at Dadar.

Sant Gadge Maharaj Municipal Market : Sant Gadge Maharaj market is a wholesale fruit and vegetable market situated near Byculla bridge on its west side. The market then known as Gold Mohur Castle market was opened by the Bombay Municipal Corporation in 1939 covering an area of 8,309 sq. metres.

Almost all kinds of fruits, sugarcane and vegetables arrive in the market.

The market consists of 300 permanent vegetable stalls and 200 permanent fruit stalls. Besides, there are 100 *kothimbir* (coriander leaves) and leafy vegetable sheds. The trader in a permanent stall has to pay monthly rent varying from Rs. 20 to Rs. 200 and a trader in temporary stall has to pay fifty paise.

The total number of sellers in the market are about 700, of whom 500 are licensees and 200 squatters. A licensee has to pay Rs. 50 per year as the licence fee to the Bombay Municipal Corporation. Besides, there are 100 *hundekaris* and *hamals*. The brokers play a vital role in the market activities as they act as a link between the agriculturists and the sellers. About 500 persons act as brokers in this market and charge 8 per cent commission rate. The broker has to pay weighing charges to the Municipal Corporation for the commodities brought by him in the market, the charges varying from 10 to 20 paise per bag below 40 kg. and Rs. 15 for a load of lorry.

The daily average arrival of commodities in this market is shown below :—

Type of commodity	Weight	No. of baskets arriving daily in the market
Vegetables	Below 40 kg. ..	450
	Above 40 kg. ..	550
Fruits	Below 40 kg. ..	5,500
	Above 40 kg. ..	750

Besides, on an average 5 lorries of sweet lime and oranges, 5 lorries of banana and 10 lorries of sugarcane arrive in the market daily.

The sale of fruits accounts for about 75 per cent of the daily arrival and the sale of vegetables accounts for about 90 per cent of the daily arrival.

Shri Chhatrapati Shivaji Market : Shri Chhatrapati Shivaji municipal fish market was started in a newly constructed building opposite Mahatma Phule market in 1971 covering the carpet area of about 3,251 sq. metres. A fish section of the Mahatma Phule market was also shifted in the same year. The proposal for shifting the wholesale fish section in a separate building was put forward formerly in the Development Plan for Greater Bombay prepared by the Bombay Municipal Corporation in 1964.

The fish market is on the ground floor of the building, while the other floors are occupied by different municipal and government offices. The market includes 22 fish *pedhis*, 6 ice stalls, 4 outside shops, 1 canteen and a waiting room. Besides, the market provides for 24 spaces which are hired on daily basis. The fish arrives in the market from the seashores in Bombay such as Versova, Vasai-Arnala as also from ports outside the limits of Greater Bombay such as Jamnagar, Bharucha, Ratnagiri, Goa, Karwar, etc. The daily total turnover of the market amounts to about Rs. 2 lakhs. The income of the market through taxes amounted to about Rs. 5 lakhs during 1975-76; while the expenditure on maintenance amounted to about Rs. 1 lakh and 50 thousand.

The retail trader has to pay 25 to 50 paise per basket as municipal charges; while the wholesaler has to pay 60 paise for a big basket, 30 paise for a small basket and Rs. 60 for a full lorry.

Ghamaji Manaji Market : This municipal wholesale plantain market was established in the year 1948 in a cattle shed near Byculla railway station. The area occupied was 1,46,659 metres. As the market was inadequate an adjoining area of 1,185 sq. metres was designed for the expansion of the market in 1964. The market is equipped with 33 stalls and 14 spaces.

Jyotiba Phule Market (Arthur Crawford Market) : The market was built upon a triangular plot of land, bounded by Carnac, Palton and Dadabhai Naoroji Road in 1865 at the cost of Rs. 19,49,700. It was named after the then Municipal Commissioner, Arthur Crawford. The fruit and the vegetable section of the market was opened on the 16th January 1868, whereas the beef market was opened in 1869. The market was completely opened for the Bombay populace in 1869. The market contained 888 rent payers' compartments out of which 765 were occupied in 1909. It consisted of three divisions, the green and general market with the Superintendent's office, and the clock tower, 120 feet high, situated on the north-west; the godowns, the purveying shops and fowl rooms on the south. The green and general market was divided into a fruit section and vegetable section, the central portion of it being surmounted by a clock. The fruit section was in the masonry wing and was equipped with 171 stalls in 1909, the larger number of these were the fruit stalls and the rest were the flower stalls. The vegetables section of the market was situated in the iron wing and was equipped with 401 stalls. Besides, vegetables of all kinds, flour, grain, bakery products, confectionery, groceries, sugar, stationery, cutlery, hosiery, footwear and many other fancy goods were also traded in this wing. The mutton and the beef sections situated on the other side of the Central garden were divided into three sections *viz.*, the Mundi or head bazar, the fish and mutton market and the beef market. The fish and beef sections comprised 119 and 84 stalls, respectively. At the western end of the market was a covered weighing shed, where consignments arriving in the market were first weighed before being distributed to the stalls for sale.

Arthur Crawford market was renamed after Mahatma Jyotiba Phule in 1962. The market is now equipped with wholesale and retail sections for fruits, eggs, beef and mutton as also with fowl rooms, bird-shops, godowns, cold storage and many other Sections such as grocery, stationery, bakery products, leather wear, footwear, etc. It now covers an area of about 22,472 sq. metres. It is rightly said that one could get anything from pin to peacock in this market. The fish section of the Mahatma Jyotiba Phule Market was shifted in the newly constructed Shri Chhatrapati Shivaji Maharaj market in 1971. The wholesale transactions in the market in respect of mutton, beef, poultry, and eggs meet the demands of a large number of retail markets in the southern and central parts of the city. The wholesale trade in fruits takes place on a large scale. Quality fruits like Alphonso mangoes are exported to foreign countries.

In 1922, a refrigeration and cold storage building was also constructed in the market premises for the proper storage and preservation of perishable articles especially fish, fruit and meat.

The cold storage plant* consisted of three chambers, one for storing fish at 28°F to 31°F; one for mutton at 30°F to 37°F and one for vegetables etc. at 35°F to 40°F. The area of cold storage chambers was 1,677 sq. metres with a storing capacity of 21 tons of fish or 33 tons of fruits. The approximate quantity of perishable goods deposited and the amount realised during 1965-66, 1970-71 and 1972-73 are given below:—

Commodity	Quantity deposited (Kg.)			Amount realised (Rs.)		
	1965-66	1970-71	1972-73	1965-66	1970-71	1972-73
Fruits and vegetables.	14,13,000	18,70,400	12,43,300	47,990	34,570	17,869
Mutton ..	5,00,500	2,36,400	1,40,258			
Fish ..	20,65,000	8,80,700	88,035			
Eggs ..	6,74,200	4,90,800	38.792			
Milk and milk products.	3,28,000	1,10,800	N.A.			

Wholesale Fruit section at Mahatma Phule Market: This is known as Scale Shed and includes 8 sheds, spaces and a passage covering an area of 86,428.12 sq. metres. In this section, the brokers are charged entrance fee against the consignment received by them. The brokers recover entrance fee from the growers while paying them the value of the produce. These brokers are not charged any rent for the space they occupy, while the sub-brokers are charged rent for the space they occupy, at the rate of 25 paise per day, per unit of 3′ × 3′.

The brokers charged about 10 per cent as brokerage during 1974-75.

Licence fee ..	Brokers	..	Rs. 100
	Sub-brokers	..	Rs. 75
	Hundekaris	..	Rs. 100
	Empty collectors	..	Rs. 50
Entrance fee ..	Per parcel upto 40 kg.	..	15 paise
	Per parcel above 40 kg.	..	25 paise
	Lorry containing loose stuff	..	Rs. 30
	Cartload loose stuffs	..	Rs. 3
Space charges per day.	Sub-broker, empty collector, parcel packers and space for storage.		25 paise per unit of 3′ × 3′ Rs. 10.
Encroachment fee ..			Rs. 10.

From October 1974 to September 1975, about 70,91,120 baskets of fruits were received in the section. About 34 different types of fruits arrive in the market from various fruit-growing areas in the country.

* The cold storage plant at Jyotiba Phule Market has been demolished (1985) and a new cold storage at Chhatrapati Shivaji Market is under construction.

In 1975-76, the licence fee recovered in the scale shed section amounted to Rs. 86,175, while the total amount recovered as entry fee, space charges and encroachment charges amounted to Rs. 16,31,370.50.

In 1975-76, there were about 6,500 persons working in this section in various capacities such as brokers, sub-brokers, hundekaris, empty collectors, servants etc. Besides, about 100 handcarts and 15 transporters used to carry the commodities from this market and supply the same to various markets in Greater Bombay. The staff of the section comprised one Head Inspector, 16 Inspectors, 12 peons, 28 labourers and 2 mukadams.

Deonar Abattoir[1]: The Deonar Abattoir was commissioned on 16th August 1971 and after demolition of the slaughter house at Bandra in April 1973, all the units were shifted to Deonar. It is the most modern and biggest abattoir in the country. The abattoir at Bandra was established in 1865, the area then being outside the limits of the city of Bombay.

Since commissioning of the Abattoir at Deonar, all the municipal and private slaughter houses and various slaughtering chambers attached to the municipal markets have been closed and all the slaughtering operations are done by the butchers absorbed in the municipal Abattoir. This fully modernised slaughter house complex, for its various slaughtering and processing operations, is equipped with necessary up-to-date mechanical and electrical equipments and has rendering plants and ancillary industrial units.

The various types of plant and machinery installed in the Abattoir and cost thereof is shown below :—

Type of Plant and Machinery installed in the Abattoir	Total cost (Rs.)
(1) Slaughtering machinery and electric equipment (imported).	56,40,483·00
(2) Slaughtering machinery and electric equipment (indigenous content).	67,27,360·00
(3) Suction tanks and pumps	4,83,176·00
(4) High and low pressure pumps	2,58,707·00
(5) Hot and cold water pipe-line system ..	17,77,780·00
(6) Waste treatment plant	7,49,677·00

The Abattoir is spread over a spacious land of 51 hectares with the main slaughter house structure built on virgin land. Of this, 8.5 hectares are utilized for the layout of slaughtering units with attached pens, rendering plants, administrative building, pumping station, waste treatment plant, laundry,laboratory and stores building and meat-van garage. 7.7 hectares are utilised for live-stock markets; 9.7 hectares are being separately developed as grazing yard-*cum*-resting ground; 5.26 hectares occupied by

[1] The information pertains to the year, 1976-77.

peripheral roads varying from 18m. to 27m. in width. Besides 1·82 hectares, are proposed to be utilised for providing quarters to the administrative and executive staff on the west and 3·43 hetcares are proposed to be utilised for providing 900 staff quarters for the slaughter house workers on the east of the slaughter house compound. On the north side of the slaughter house, 14.56 hectares of land is reserved for setting up ancillary industries of various products of the slaughter house and the plots are being offered to prospective industrial concerns.

The following statement gives information regarding various units and their slaughtering capacity:—

Unit	Date of commissioning of units at Deonar Abattoir	Slaughtering capacity
(1) Pig unit ..	16-8-1971	100 pigs in 6 hour shift.
(2) Cattle unit (Kurla)..	9-1-1972	300 cattle in one shift of 6 hours.
(3) Cattle unit (Bandra).	7-5-1973	....
(4) Jhatka unit ..	13-1-1972	100 sheep and goats in one shift.
(5) Jewish unit ..	14-3-1972	200 sheep and goats and 4 cattle heads in one shift.
(6) Main sheep and goats units (Bandra).	12-5-1973	600 sheep and goats on 3 lines per 8 hours shift.
(7) Emergency slaughtering unit.	N.A.	100 sheep and goats in one shift.
(8) Emergency cattle slaughtering unit.	N.A.	10 heads of cattle in one shift.

On an average, 6900 sheep and goats worth Rs.9 lakhs are slaughtered per day. The total sale value of 650 horned cattle slaughtered here per day amounts to about Rs. 5 lakhs, whereas the total sale value of 50 pigs slaughtered per day comes to about Rs. 6,000.

The stunning arrangement for horned cattle is by captive bolt method, whereas the stunning of sheep and pigs is done by electricity. Main slaughtering unit is provided with the most modern slaughtering facilities with human method of slaughtering. Besides this general unit, where *halal* method of slaughtering is followed by Muslims, other ritual slaughtering houses to meet the requirements of other religious practices are also maintained.

The basic practices of slaughter houses adopted in all modern slaughter houses of International standards, are fully observed at Deonar. Separate arrangement is made to ensure maximum standards of hygiene. At various

points on the dressing floor as well as other operational centres, laboratory and sterilizer units are provided within the reach of every operator for sterilizing his knives and other instruments.

All the slaughtering units are provided with individual hanging halls for accommodating number of animals slaughtered in the respective units. The main sheep and cattle units are provided with chiller units and chiller stores at 10°C for accommodating 5 tons *i.e.*, five per cent of the daily output for fifteen days. Similarly a freezer unit at freezer stores at 15°C is provided for about 5 per cent of daily output.

Meat carcasses are brought from their hanging hall to delivery hall by means of lowerators. Inter-connecting overhead rail work is provided so that meat carcass from one rail can be transferred to other rail. Telescoping loading rails are provided for loading the meat into the meat van.

A fleet of 45 meat delivery vans transport the meat from the Abattoir to the various meat markets and meat shops at prominent places.

The rendering plants—blood rendering, edible rendering and inedible rendering are housed in a separate building along with the boiler unit. The steam required in the rendering plant and for converting cold water into hot water is generated by means of 4 automatic packaged type boilers, each having a capacity of 200 H.P. with an evaporation rate of 6900 lbs. steam per hour at 150 lbs. pressure. A separate 60 H.P. boiler is provided for supplying steam to Jewish *jhatka* and pig slaughtering unit.

A very well-equipped pumping station with two spacious storage tanks of 4 lakh gallons each, 3 high pressure pumping units, 2 lowpressure pumping units and one separate fire-fighting unit with a separate storage tank with the capacity of 30,000 gallons are provided. A separate waste treatment plant comprising of mechanical settling tank and manual hopper unit is also provided on the north side of the slaughter house.

The main market functionaries in the abattoir are dealers of animals, brokers, shroffs, caretakers of animals, butcher licensees, etc. The brokers and the shroffs levy a commission of Rs. 1·40 per sheep and goat sold through them and they share the same equally. The *gawals* charge Rs. 1 per sheep and goat per day for taking care until the same are sold. The brokerage charge for a big animal is Rs. 5 per animal.

The licence fee for the cattle broker, shroff, sheep and goat broker and skin and hide dealers is Rs. 500 per annum, respectively. The licence fee per annum for the gut dealer (mutton) are Rs. 350 and Rs. 300 respectively. The cattle as also the sheep-goat dealer has to pay Rs. 100 per annum.

As a result of the up-to-date modern amenities available at Deonar Abattoir, and the highest standard of hygienic conditions maintained

therein, the export of buffalo-meat has been tremendously increased. The cattle unit is required to run in two shifts and the total number of the animals slaughtered per day is over 550 cattle. Of these, nearly over 150 carcasses of buffaloes are daily exported to the Middle East countries, by the refrigerated cargo ship. Government, on an average, earns foreign exchange of over a lakh of rupees every day from export of buffalo-meat. MAFCO, a State Government enterprise, also continues to export mutton and beef procured from the Abattoir to Middle East and other countries. Since 1974-75, the export of mutton by air to Middle East countries has increased prodigiously and during that year, about 835 tonnes of mutton was exported from the Deonar Abattoir. During 1975-76, the export of meat increased tremendously especially in case of chilled mutton which was mainly air-lifted and the country has gained the foreign exchange worth Rs. 5 crores from these exports.

A number of major pharmaceutical concerns like Messrs. Sandoz Ltd., Messrs. Griffon Laboratories, Messrs. Haffkine Institute and many others are taking benefit of the facilities provided at the Abattoir to collect various glands and other products, etc., for manufacturing important medicines. A demonstration-*cum*-training centre for processing guts, started by the Government of India continued the training programme successfully. The blood powder produced at inedible plant was of international standard. However, the production thereof had to be suspended since January 1976 as it ceased to be profitable.

The income and expenditure of the Abattoir during 1976-77 amounted to Rs. 2,03,19,576·46 and Rs. 1,55,08,410·81, respectively.

Wholesale Stores : The wholesale consumer co-operative stores play a vital role in the co-operative movement in general and wholesale trade in particular in Bombay.

While some of the municipal markets in Greater Bombay are engaged in the wholesale trade of vegetables, fruits, mutton, fish, etc, the wholesale trade in consumer goods is undertaken by private wholesalers and the co-operative wholesale stores. The latter are registered with the District Deputy Registrar of Co-operative Societies, Bombay. There are in all 15 wholesale co-operative consumer stores in Greater Bombay of which 10 are State sponsored.

Even though, these stores are registered as wholesale stores, they also transact retail trade of consumer goods. These stores deal in wholesale and retail sale of both controlled and also non-controlled commodities. They are generally overcrowded by consumers as all types of consumer goods are available here at cheaper rates than in the shops of private dealers. This results in the large sale of commodities as can be seen from Table No. 24.

TABLE No. 24

WORKING OF THE WHOLESALE CONSUMER CO-OPERATIVE STORES IN GREATER BOMBAY AS AT THE END OF JUNE 1976

(Rs. in Thousands)

Name of the wholesale store	Number of stores			Number of branches			Membership	Paid-up capital (Rs.)	Deposits (Rs.)
	Total	Those doing processing activities	State sponsored	Total	Department stores	Others			
1	2	3	4	5	6	7	8	9	10
(1) Mumbai Kamgar ..	2	1	1	23	2	21	8,699	19.59	17.52
(2) Supari Baug ..	1	..	1	8	..	8	3,489	4.14	1.92
(3) Ishanya Mumbai ..	1	..	1	13	..	13	2,655	1.11	0.00
(4) Mastan Baug ..	1	..	..	3	..	3	1,087	1.25	0.38
(5) Rashtriya Mill Mazdoor ..	1	..	..	..	..	..	1,201	1.19	0.00
(6) Kalavihar ..	1	..	1	10	1	9	2,689	3.21	4.97
(7) Shri Vaibhav ..	1	..	1	12	1	11	5,219	9.66	0.56
(8) Laxmi ..	1	..	1	12	..	12	2,844	7.40	....
(9) Sahyadri Sahakari ..	1	..	..	3	..	3	1,021	0.44	....
(10) Colaba Central ..	1	..	1	2	2	..	8,887	14.97	0.74
(11) North Bombay ..	1	..	1	1	1	..	6,926	15.00	11.73
(12) Pragati Mandal ..	1	..	..	5	..	5	13,711	5.59	3.78
(13) South India ..	1	..	1	7	..	7	10,776	4.26	6.85
(14) Bombay University ..	1	..	1	..	..	..	163	2.68	....
(15) Chembur Central ..	1	..	..	..	..	..	1,450	0.70	0.32
Total ..	16	1	10	99	7	92	70,817	91.19	48.77

TABLE No. 24—*contd.*

(Rs. in-Thousands)

Name of the wholesale store	Total liabilities	Working capital	Total assets	Purchase	Total sales	Sales				Wholesale non-controlled
						Of which sales through Department stores	Food-grains	Sugar	Others	
	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)	(Rs.)
1	11	12	13	14	15	16	17	18	19	20
(1) Mumbai Kamgar ..	141.22	142.43	142.43	1,109.03	1,159.39	364.91	440.23	59.78	0.82	19.36
(2) Supari Baug ..	17.76	18.52	18.62	140.82	143.71	..	4.70	0.80	0.11	31.04
(3) Ishanya Mumbai ..	8.55	8.93	8.33	305.30	307.65	..	179.88	..	..	..
(4) Mastan Baug ..	2.23	2.47	2.47	19.59	20.53	..	..	..	..	..
(5) Rashtriya Mill Mazdoor ..	1.21	1.21	1.21	..	..	..	..	..	..	..
(6) Kalavihar ..	16.88	14.91	14.91	83.28	87.39	..	41.26	..	..	..
(7) Shri Vaibhav ..	35.58	34.62	34.62	204.47	210.33	5.82	84.42	11.34	..	5.80
(8) Laxmi ..	24.45	24.63	24.63	128.43	134.07	..	7.35	..	..	..
(9) Sahyadri ..	1.65	1.79	1.79	20.28	20.48	..	..	..	..	..
(10) Colaba Central ..	76.21	83.34	83.34	357.39	372.12	340.88	31.24	..	..	..
(11) North Bombay ..	65.11	55.08	55.08	212.00	384.00	150.00	46.00	15.00	..	34.00
(12) Pragati Mandal ..	20.55	21.75	21.75	356.95	363.80	..	203.47	26.08	..	97.76
(13) South India ..	50.16	43.32	43.32	71.45	89.51	..	4.23	0.59	0.10	17.36
(14) Bombay University ..	7.98	8.00	8.00	12.00	13.01	..	..	..	..	..
(15) Chembur Central ..	1.26	1.29	1.29	8.15	7.62	..	..	..	..	..
Total ..	471.80	462.24	461.74	3,029.14	3,213.63	861.61	1,012.78	113.59	1.03	205.32

TABLE No. 24—*concld.*

(Rs. in thousands)

Name of the wholesale store	Sales				No. of fair price shops	Profit		Loss		No. of stores without profit or loss
	Retail controlled			Retail non-controlled (Rs.)		No. of stores	Amount (Rs.)	No. of stores	Amount (Rs.)	
	Food-grains (Rs.)	Sugar (Rs.)	Others (Rs.)							
1	21	22	23	24	25	26	27	28	29	30
(1) Mumbai Kamgar ..	114.49	0.86	..	158.94	19	1	1.21	..	..	..
(2) Supari Baug ..	30.12	..	..	76.94	6	1	0.86	..	..	..
(3) Ishanya Mumbai ..	107.83	..	8.47	11.47	12	..	..	1	0.22	..
(4) Mastan Baug ..	11.27	..	..	9.26	1	1	0.24	..	..	..
(5) Rashtriya Mill Mazdoor ..	..	..	..	..	..	..	..	..	..	1
(6) Kalavihar ..	..	..	..	46.13	..	..	..	1	1.97	..
(7) Shri Vaibhav ..	54.49	2.00	4.80	41.66	6	..	..	1	1.96	..
(8) Laxmi ..	6.96	..	..	119.76	2	1	0.18	..	..	..
(9) Sahyadri ..	16.10	..	..	4.38	3	1	0.14	..	..	..
(10) Colaba Central ..	..	..	..	..	1	1	7.13	..	..	..
(11) North Bombay ..	..	..	..	39.00	1	..	..	1	10.03	..
(12) Pragati Mandal ..	36.49	..	..	..	5	1	1.20	..	..	..
(13) South India ..	34.73	..	..	32.10	..	..	..	1	6.84	..
(14) Bombay University ..	..	..	..	13.01	..	1	0.02	..	..	..
(15) Chembur Central ..	..	..	..	7.62	..	1	0.03	..	..	..
Total ..	412.48	2.86	13.27	560.27	56	9	11.01	5	21.02	1

Agricultural Produce Market Committee, Bombay : Being a metropolitan city and terminal market in the State, agricultural produce from all corners of the State and also from outside the State is consigned to Bombay either for sale or export. Before the establishment of the agricultural produce market committee in Bombay, the trade was solely in the hands of commission agents and big traders. There were no regulations or restrictions on the sale of agricultural produce. Moreover while selling agricultural produce, the commission agents used to sell it by secret system (*hatta system*) and not by open auction. In the circumstances the agriculturists or consignors were always kept in dark about the rates quoted in the sale transactions by the commission agents and purchasers. There was no restriction on the commission agents so far as charging the commission and deducting various amounts from the sale proceeds.

As such, it was a matter for consideration before the Government as to whether the market committee should be established for Greater Bombay under the provisions of the Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963. This Act could not be implemented earlier in Greater Bombay as the traders' community was totally against the regulations of transactions in agricultural produce. However market committee was established and started its functioning from 1st March 1977.

This market committee has removed the secret system. The sales are made by open auction system or by one of the systems as envisaged in rules. Besides, the unusual deductions are not allowed in the market. The committee also takes care to remit the sale proceeds to the agriculturists and consignors at the price obtained in the open auction after deducting legal charges. The weighment or measurement is done in the presence of licensed weighmen. The commission agent in the market has to charge at the prescribed rate of commission. In the market committee, the bills, account slips, and goods receipts are prepared and sent to the respective persons and weighment slip is prepared on the spot while delivering the commodity to the purchaser.

The market committee consists of 28 members, representing agriculturists from the State, nominees of the Bombay Municipal Corporation, traders and consumers.

The committee has implemented the regulation of wholesale transactions of onions and potatoes with effect from 1st March 1977, that of *Santra* (orange) and *Mosambi* from 1st April 1977 and of mangoes from 1st July 1977.

In 1977 Maulana Azad Road Market (onions and potatoes), Sant Sawata Mandai (onions and potatoes), Mahatma Jyotiba Phule market (*Santra, Mosambis* and mangoes) and Sant Gadge Maharaj Market

(*Santras*, *Mosambis* and mangoes) had been declared as sub-market yards in addition to the main market yard at Washi (MAFCO marke).

The market functionaries operating in these markets are commission agents, purchasers (traders), assistants of commission agents and traders, *hamals*, weighmen, *hatha-gadiwalla*, *hundekari*, etc., and they are supposed to obtain licences from this committee, and to renew them every year.

Wholesale Trade in some important commodities : (1) *Paper* : With the continuous and substantial drop in imports, the dealers in paper trade had to switch over from imported stuff to indigenous goods. As a result, the fortunes of paper trade are interlinked with the fortunes of paper industry in the country. The main sources of supplies are from paper manufacturing units located in different places in the country such as Ballarshah in Maharashtra State, Jagadhari, Dandeli etc.

The wholesale trade establishments of paper are concentrated in Sutar Chawl and on Pherozeshah Mehta Road in Bombay. As per the 1971 Census, 845 persons were engaged in the different activities of wholesale trade in paper and other stationery articles in Bombay.

(2) *Textiles* : The wholesale trade in textiles depends entirely on the textile mills located in Bombay as also outside Bombay such as those located in Hyderabad, Ahmedabad, Mysore, Madras, Bangalore, Calcutta and Delhi.

All types of textile fabrics are obtained by the wholesalers and semi-wholesalers from the manufacturers and in turn by the retailers from these wholesalers and semi-wholesalers. The commission agent acts as an intermediary for financing semi-wholesalers and retailers.

The wholesalers are doing the business on their own and therefore are keeping a margin of profit according to competitiveness of the product, but in no case the margin of profit is less than seven per cent. A commission agent on the other hand receives about one per cent commission from the wholesalers which is included in the margin of profit of the wholesaler.

The turnover of wholesalers and semi-wholesalers exceeds about 500 crores of rupees per year.

The wholesale traders, who get their supplies from the textile industry, have to depend on credit facility for selling the goods. Even though, the duration of credit is extended to more than six months, the payment is not received from the retailers. On the other hand the wholesalers do not get their supplies from the mills without clubbing. In fact many a time, textile mills force the wholesalers to handle the contracts entered into at lower price and to accept new contracts at higher prices.

(3) *Automobiles* : The automobile dealers, a vital link between the manufacturer and the customer, have agreements with manufacturers for the sale of cars, scooters, commercial vehicles etc. The success of a franchised automobile dealer is tied up with the growth of automobile industry.

The profit margin allowed to an automobile dealer currently ranges from 2 per cent to 5 per cent as compared to 20 to 50 per cent in the case of cars and commercial vehicles which existed prior to April 1955.

The demand recession which hit the car and jeep sectors in 1973, subsequently affected the commercial vehicles sector also and has now affected the scooter industry also. Many of the existing dealers have started diversifying their trade activities by entering into allied lines like running petrol pumps and body building and even non-allied lines like trading in refrigerators, T.V., air-conditioners, etc.

In 1973 the distribution and sale of cars and scooters were subject to the control of the Union Government. There was, however no such control on commercial vehicles. However, a franchise dealer was allotted a specific area for distribution of commercial vehicles and was allowed to appoint a sub-dealer with the approval of the manufacturer in any specific area included in his territory.

(4) *Pipes and Fittings* : The trade in pipes and fittings is mostly concentrated in Nagdevi street area which is also known for quality engineering products. Some of the merchants are manufacturer-*cum*-traders, while some are only stockists and distributors of the products of certain specific companies and some are only importers and exporters of pipes and fittings.

The first World War proved a blessing in disguise to the pipes and fittings merchants due to rising demand. The trading opportunities were fully utilized by the pipes and fittings merchants and even indentors who had been previously indenting on behalf of merchants were tempted to undertake direct imports on their own. This resulted in a glut of pipes and fittings and the traders and merchants were faced with a new problem. The depressed conditions continued for a long period even after the First World War and it was necessary for the merchants and traders to think of ways and means in meeting the situation. Within a few years after the outbreak of Second World War severe shortage of pipes and fittings in the market developed on account of short supply in imports, particularly from the United Kingdom which was prominently involved in war operations. Towards the end of 1942, the trading in pipes and fittings was controlled by the Government. As a result the merchants were not allowed to sell the controlled commodities directly to the

consumers, and on the contrary they had to submit a list of stocks held to the authorities. They had to release the material only against the release orders received by the Government. Since 1942 no direct imports by merchants were permitted and the imports of pipes and fittings dealt by the Government were allowed to be handled by a private firm. In 1947 the Bombay Registered Pipe Dealers' Syndicate Private Limited was formed, consisting of quota holders and non-quota holders. The syndicate was the only distributing agency of pipes and fittings upto 1953, when the control order was lifted. Since 1953 imports were liberalised and merchants were permitted to import pipes on their own, but as the foreign exchange position became critical, the import quota of pipes was again restricted. Since 1957, the import quota of pipes was further reduced by about 20 per cent. The shortage of the materials caused the prices to rise considerably.

As there were only two companies dominating the Indian market, one of these adopted a sales policy according to which special discounts were allowed to bulk buyers. Subsequently a number of units came into production and owing to competition amongst the manufacturers the scheme of special discount was discontinued.

(5) *Cereals, Pulses and Oilseeds* : Bombay has a well-organised market in pulses and oilseeds at Dana Bunder near Masjid Road Station where godowns of Bombay Port Trust are situated. As per 1971 Census, 845 persons were engaged in wholesale trade of cereals and pulses in Greater Bombay and 1545 in the wholesale trade of food stuffs other than cereals and pulses.

The traders buy goods from various upcountry producing centres, bring those goods and sell them in the market and charge prescribed rate of commission. They also receive goods from their upcountry agents for sale on commission basis. The annual turnover of a wholesale trader of cereals and pulses is approximately two million bags which is worth about twenty crores of rupees. The rate of brokerage varies from half per cent to one per cent and the rate of commission on the sale of goods ranges from 1 to 2 per cent.

The average annual arrivals of groundnut and groundnut oil in the market are about 3 lakh tons and 1 lakh tons, respectively.

(6) *Electrical Goods* : The trade in electrical goods was confined to very limited articles. But with the passage of time various new types of electrical goods used for domestic as also industrial purposes are coming in vogue. Majority of electrical shops are situated in Lohar Chawl area. As per 1971 Census, 685 persons were engaged in the wholesale trade of electrical machinery and equipments.

These wholesalers deal in cables and wires, cable joining material, wiring accessories, conduit pipes, all types of domestic appliances, fans and radios and industrial equipments, insulating materials and enamelled winding wires, lighting equipments, switchgears, motor control gears, etc.

The annual average turnover of a dealer varies from Rs. 5 lakhs to 10 lakhs.

The dealers have formed associations to solve their problems.

(7) *Timber* : About 500 timber wholesale merchants are found selling timber in Greater Bombay. The group includes importers of various species of timber from other States in India and supply them to different industries and Government departments against contracts. Besides, there are traders who undertake timber business on purely commission basis, rates of commission varying from 5 to 7½ per cent. Timber contractors and saw-millers outside Bombay consign the timber to these commission agents who sell them in Bombay. This practice is mostly prevalent at Darukhana Lakdi Bunder where the goods arrive by country crafts and at Byculla Goods Depot and Wadi Bunder where the goods arrive by rail.

Junglewood is consigned to Bombay from various places in South India such as Mangalore, Calicut, Ernakulam, etc; teak from Nagpur and Chandrapur in Maharashtra State and Jabalpur in Madhya Pradesh; and fir and chir from Pathankot in Punjab State and from Assam.

About two lakh tons of junglewood logs and sawn sizes worth Rs. seven crores; about 40,000 tons of teakwood logs and sawn sizes worth Rs. 4 crores and about 25,000 tons of fir and chir sleepers and logs valued at Rs. one and a half crores arrive in Bombay every year for sale.

Maharashtra State Co-operative Marketing Federation : The Maharashtra State Co-operative Marketing Federation was registered in 1958 as a State-sponsored and State-participated apex organization for marketing co-operatives in the then bilingual Bombay State with its head office at Bombay. The federation however started its functioning in 1959 with the Board of Directors nominated by the State Government. The federation is mainly entrusted with the objectives to create an institutional agency for marketing agricultural produce, to supply farm requisites to farmers, to co-ordinate the working of affiliated marketing agencies; to provide market intelligence and guidance etc. All these objectives are set to bring about improvements in farming techniques, to boost agricultural production and strengthen and develop co-operative marketing in the State.

The paid-up capital of the Federation as on 30th June 1973 amounted to Rs. 155·25 lakhs. The details of the financial position of the Federation in 1970 and 1975 are given below:—

(Rs. in lakhs)

Particulars	1970	1975
Share Capital (including Government contribution).	1,14·00	6,49·00
Reserve and other funds ..	64·00	2,26·00
Bank loan	14,36·00	7,10·00
Working capital	17,23·00	15,85·00
Gross profit	96·00	....
Net profit	30·00	....
Net loss	....	114.00
Total—turnover ..	34,63·00	32,84·00

The Board of Directors which governs the administration and functioning of the federation consists of 32 representatives representing taluka and district co-operative marketing societies, central co-operative banks, co-operative sugar factories, apex co-operative bank, other State co-operatives, the Commissioner and Registrar of Co-operative Societies.

During 1974-75, there were 508 'A' class members; 213 'B' class members; and 123 associate members.

The trade activities handled by various departments of the federation are described below.

(1) *Foodgrains* : The Federation plays a major role in the purchase and distribution of foodgrains other than jowar, and rice. The State being a deficit State in foodgrains, it necessarily has to import foodgrains from other surplus States like Punjab, Uttar Pradesh, Madhya Pradesh, etc. Besides, during harvest season, the federation purchases cereals, pulses, oil-seeds etc, from the local markets and distributes these foodgrains to consumers through the channel of co-operative consumer societies at reasonable prices. The Federation also undertakes the distribution of controlled commodities like sugar, wheat products to the nominees and retailers appointed by Government of Maharsahtra, mainly in Bombay. The sales of these commodities in the year 1973 were to the tune of Rs. 5·80 crores, of which levy sugar amounted to Rs. 5·17 lakhs (264,000 quintals) and wheat products of Rs. 63 lakhs (73,000 quintals). The Federation supplies agricultural produce to consumers' co-operatives at reasonable prices including those organised for industrial workesr. Similarly, the Federation also supplies agricultural produce to the jails

in the entire State. During the year 1972-73, the total value of such supplies amounted to Rs. 1 crore. A number of consumers' co-operatives and industrial canteens buy foodgrains from the wholesale shop at Masjid Bunder maintained by the Federation for this purpose. During 1974-75, the Federation purchased 695 quintals of *mung* through the sale purchase societies and distributed the same to Mumbai Kamgar Sangh and Samarth Co-operative Society.

The Marketing Federation which has the agency of the Indian Oil Corporation, meets the demand for mineral oils required by processing units, growers, and their co-operatives. With a view to supply superior kerosene and light diesel oil from ready stocks, Federation has opened a depot at Wadala.

During 1971-72, 14,914 kilolitres of superior kerosene oil, 680 kilolitres of crude oil and 98 kilolitres of mobile oil, was sold from this depot. In 1974-75, the sale of Wadala Depot increased to 46,185·50 kilolitres of superior kerosene oil valued at about Rs. 4 crores. The depot earned the gross profit of about Rs. 2 lakhs during 1973-74 and approximately Rs. 4 lakhs during 1974-75.

The Federation has also opened two shops, one each at Duncan Road and Byculla for the sale of vegetables and fruits on consignment basis, despatched by member societies. The goods handled in these shops include grapes, mangoes, *papayas*, brinjals, lady's fingers, bananas, potatoes. The vegetables and fruits are supplied regularly to institutions like Indian Institute of Technology, Powai; Beggar's Home; Jails, etc. During 1971-72, the Byculla branch supplied vegetables and fruits of the value of Rs. 2,85,583 to 9 such institutions. During 1974-75, it supplied mangoes, sweet potatoes, tomatoes, etc., worth about Rs. 2 lakhs and suffered the loss of about Rs. 29 thousand. During 1974-75 the annual sales of the Byculla branch approximately amounted to Rs. 181 thousand and earned the gross profit of about Rs. 18 thousand.

The Duncan road branch in 1971-72 supplied onions and potatoes to various canteens and institutions worth about Rs. 117 thousand during the year 1971-72 and thereby received a commission of Rs. 6,400.

During 1974-75 the value of supplies increased to about Rs. 354 thousand and thereby earned the net profit of Rs. 8,201·05.

The total value of sales of the Duncan Road branch increased from about Rs. 24 thousand in 1973-74 to about Rs. 354 thousand in 1974-75 and thereby earned the gross profit of Rs. 4,226·53 in 1974-75.

The Federation also supplies pulses, etc. to the National Agricultural Co-operative Marketing Federation. During 1974-75, the value of pulses, *gul*, onion, etc., supplied to the National Agricultural Co-operative Marketing Federation amounted to Rs. 33·45 lakhs.

(2) *Procurement of Foodgrains* : The co-operative machinery of the Federation is being used for the procurement and distribution of foodgrains. The monopoly procurement scheme for jowar was initiated in 1964-65 and that for paddy and rice in 1965-66. The Marketing Federation is working as an agent of Government in implementing the scheme. In case of jowar, the number of such purchasing centres rose from 87 in 1964-65 to 490 during 1972-73 and the number of sub-agents rose from 257 during 1964-65 to 308 during 1972-73 in Maharashtra. In case of paddy, the number of purchasing centres and number of sub-agents decreased from 710 in 1965-66 to 538 during 1972-73, and from 241 in 1965-66 to 153 in 1972-73, respectively in the State. The quantity of jowar thus purchased through all these centres during 1964-65 was 2,47,181 tonnes, worth Rs. 12·95 crores. During 1972-73, the total quantity of jowar purchased however decreased to 33,227 tonnes, valued at Rs.1·93 crores. The Federation purchased 1,12,618 tonnes of paddy, worth Rs. 5·97 crores during 1964-65. Like jowar the purchase of paddy also showed a decrease during 1972-73 as only 84,142 tonnes of paddy was procured during 1972-73 at a cost of Rs. 5·37 crores. The difference in value of paddy in 1964-65 and 1972-73 might be due to rise in prices.

(3) *Fertilisers* : Realising the difficulties of the co-operatives in catering to the needs of the agriculturists in the State, the apex marketing federation handles the distribution of fertilisers through co-operative societies. It has taken up the agencies of five companies of which two are in Bombay *viz.*, the Fertiliser Corporation of India Limited, Trombay and Dharamsi Morarji Chemicals Co. Limited, Ambarnath. During 1971-72, the Federation purchased 12,302 tonnes of Urea and 10,068 tonnes of Suphala from the Fertiliser Corporation of India, Trombay.

Since 29th March 1972, Dharamsi Morarji Chemicals Company Limited, handed over the distribution of single superphosphate to the Federation. Since then the Federation is acting as the agent in distributing single superphosphate, and it distributed 2,848 metric tonnes of single superphosphate of Morarji Chemicals Company during 1972.

(4) *Machinery* : The Federation, among its multifarious activities, is also undertaking the distribution of agricultural machinery, particularly electric engines, oil pumps and Government tagai loans to farmers. The Federation has also taken up the agencies of almost all popular types of oil engines, electric motors and pumping sets for the entire State.

(5) *Cotton* : The Monopoly Cotton Procurement Scheme was started from 1st July 1972 in the State. Under the Maharashtra Raw Cotton (Procurement, Processing and Marketing) Act 1971, the Federation was appointed as a chief agent for procurement, processing and marketing of cotton in Maharashtra. The scheme was suspended in the cotton

seasons of 1973-74 and 1977-78. However, it was extended upto 30th June 1986 subsequently, and was restarted from November 1986.

FAIR PRICE SHOPS

The office of the Controller of Rationing regulates the distribution of commodities which are scarce in the market, through fair price shops.

The statutory rationing was introduced for the first time in the city of Bombay during the Second World War in 1943. In the beginning ration cards were issued, and the area of operation was restricted only to the then Bombay city. In 1954, as a result of the improved overall situation of foodgrains, the statutory rationing was discontinued. Since November 1957, due to conditions akin to scarcity in the State Government introduced foodgrains distribution system in Greater Bombay. This system was not executed under any statutory orders, but only on the basis of agreements executed between the fair price shopkeepers and the Government.

There were 17 zonal offices in Greater Bombay for the execution of the foodgrains distribution system and the area of operation was extended upto Borivli on western side and Mulund on eastern side. In this distribution system, family ration cards were introduced in Greater Bombay and the foodgrains were distributed according to fixed quantum and fixed price to the cardholders, who were the heads of the families. Even though, the availability of foodgrains on cards was ensured, the foodgrains were also available in open market for the consumers in Bombay. This system had a good impact on controlling the prices of foodgrains in open market.

Again after the failure of monsoons which resulted in the shortage of foodgrains, Government introduced statutory rationing in Greater Bombay from April 1966, under the Maharashtra Foodgrains Rationing Order, 1966. Initially, the foodgrains like rice, wheat, jowar, bajri, maize and millo were distributed as rationed commodities and they were also included in the initial statutory order.

At the beginning of 1974, after the acute shortage of kerosene, Government decided to distribute kerosene oil at fixed quantum and price to the cardholders on ration cards. This system was adopted from September 1974.

In 1977, as per the schedule of the Maharashtra Rationing (Second) Order, 1966, only rice and millo were the rationed commodities. However, for the convenience of the cardholders, wheat and jowar were also issued on cards.

Statutory rationing has been withdrawn recently, though the articles are distributed through the public distribution system.

There were in all 2076 authorised ration shops during 1977 in Greater Bombay. The category-wise information of these authorised ration shops is as follows :—

Category	No. of authorised retail shops
(1) Scheduled Castes, Scheduled Tribes and Other Backward Class societies.	2
(2) Other co-operative societies	451
(3) Employees' shops	102
(4) Freedom fighters	59
(5) Ex-servicemen	1
(6) Scheduled Castes and Scheduled Tribes persons	4
(7) Other individuals	1454
(8) Hotel associations and societies	3
Total ..	2076

The quantity of foodgrains distributed through the authorised ration shops in Bombay during 1974, 1975 and 1976 was as follows :—

(Figures in metric tonnes)

Year	Rice	Wheat	Other Foodgrains	Total
1974 ..	1,64,085	4,31,942	24,747	6,20,774
1975 ..	1,14,700	5,37,572	9,690	6,61,962
1976 ..	1,85,537	3,82,269	4,939	5,72,745

In 1977, the number of ration cardholders in Greater Bombay was 16,12,437; while the total number of units in these ration cards was 1,22,65,337. The general quantum fixed per adult i. e. 2 units varied according to the stock available with the Government. In 1977, the quantum of rice, wheat, jowar and sugar fixed per adult per fortnight was : rice 1 to 2 kg; wheat 5 kg; jowar 1 kg; and sugar 300 grams.

The profit margin allowed to be taken by the ration shopkeeper varies according to the commodity. In case of rice and sugar, the profit margin permissible is fixed at Rs. 5 per quintal and in case of wheat, bajra, and jowar, it is fixed at Rs. 4 per quintal.

RETAIL TRADE

Even for a long period after the possession of the island by the East India Company, the local trade was comparatively small. The factors

responsible for its slow growth were lack of adequate capital, external warfare, epidemic diseases and the absence of trading class. The Company's Government then appointed persons called *Kacharas* to trade in rice and grain. However, these persons were supposed to sell small quantities of grain in public market. In 1741, the Bombay Government appointed a clerk of the markets to undertake retail sale of grain.

Trade other than grain trade was free from Government interference in the middle of the 18th century, and encouragement was given to the fishermen, cultivaters to bring their produce in the market. During the first half of the 19th century, the local trade profited by the increase in the foreign trade which induced rich merchants, Parsi, Hindu and Englishmen, to open agencies and shops.

Besides many persons engaged in banking, agency and brokerage, Bombay had in 1847, 201 *dal* and rice dealers, 152 confectioners, 491 cloth merchants, 203 dealers in brass and copper, 253 tobacconists and 439 pawn brokers.

In the context of the retail trade in Bombay, the Shops and Establishments Act of 1948 assumes importance which becomes evident from the fact that it roughly covers about one-half of the total firms and about one-third of the total employment in the city of Bombay.

The Bombay Shops and Establishments Act, 1939, was the first attempt by the Government of Bombay to regulate the conditions in this large but neglected field. Its administrative and substantive provisions were however found to be inadequate both from the point of view of content and coverage and a need for a more comprehensive measure was felt. The Act was therefore replaced by the more comprehensive Bombay Shops and Establishments Act, 1948, which came into force from January 1949. The Act divides the establishments into five categories, *viz.*, shops; commercial establishments; residential hotels; restaurants and eating houses; theatres and other public amusement or entertainment.

Retail trade in Greater Bombay is carried on by numerous shops located in various wards of the city and suburbs. Their number and concentration depend on the bazar locality and the demand for the goods kept for sale. Many a time these shops keep a variety of goods for the convenience of their customers and thus secure handsome business. Their stock-in trade is usually limited but is rapidly replaced when sold out. Retailers usually purchase from wholesalers.

Of the total number of firms in Greater Bombay, the shops in retail trade constitute the major percentage *i.e.* about 45 to 50 per cent. The retail trade firms can be divided into following major categories: cereals and pulses, vegetables and fruits, eggs and poultry, cooked food, dairy

products, tobacconists and pan-bidi shops, other food articles, fuel, textiles, wearing apparel and made up textile goods, precious stones and jewellery, chemists, metal utensils and glassware, building material, electrical goods, etc.

Most of the shops which cater to the daily needs are scattered over all the localities of all the wards in Greater Bombay. But there are many bazars specializing in a particular type of commodity. The following statement reveals the number of retail trade establishments in Greater Bombay as per the 1971 Census:—

Category	No. of establishments	Persons employed
(1) Retail trade in food and food articles beverages, tobacco and intoxicants.	33,527	70,500
(2) Retail trade in textiles ..	5,578	18,742
(3) Retail trade in fuel and other household utilities and durables.	10,962	28,077
(4) Retail trade in others	11,847	33,541
District Total ..	61,914	1,50,860

About one-fourth of the total retail establishments in Greater Bombay are located in Ward 'C' which covers the areas of Khara Talao, Kumbharwada, Bhuleshwar Market (area around the Mulji Jetha and Mangaldas markets), Dhobi Talao and Fanaswadi; about 13 per cent establishments are located in Ward 'B' covering the areas of Mandvi, Chakala, Umarkhadi and Dongri; about 12 per cent establishments in Ward 'A' covering the areas of Upper Colaba, Middle and Lower Colaba, Fort (South), Fort (North) and Esplanade; about 11 per cent in Ward 'G' covering the areas of Dadar, Mahim, Prabhadevi, Worli, Chinchpokli and Love-grove; about 10 per cent in Ward 'D' covering the areas of Khetwadi, Girgaum, Chowpatty, Walkeshwar and Mahalaxmi; about 9 per cent in Ward 'E' covering the areas of Tardeo, Mazagaon, Tadwadi, Nagpada, Kamathipura and Byculla; and about 8 per cent in Ward 'F' covering the areas of Parel, Sewri, Naigaum, Matunga and Sion. The suburban area constitutes about 12 per cent of the total shops and establishments in Greater Bombay. During 1975, there were as many as 1,06,334 shops and 46,602 commercial establishments registered under the Shops and Establishments Act, 1948, in Greater Bombay.

Some of the important municipal* retail markets in Bombay are described below:

Colaba Market: This is a composite retail market situated at Lala Nigam Road, Colaba. This was started in 1895 and covered an area of 917 sq. yards. The market is particularly convenient to the fishermen working in Sassoon Dock area. The market consists of 45 stalls and is well-patronized and overcrowded.

Fort Market: This is strictly a retail market situated at Mint Road. It was remodelled in 1939 and extended over an area of 1905 sq. yards. As the market area was found to be inadequate during peak hours, the adjoining area of 1955 sq. yards was reserved for the extension of this market under the Development Plan prepared in 1964. The market is equipped with 46 mutton stalls and 108 vegetable stalls.

Dongri Municipal Market: The market established in 1954 is situated near Sandhurst Road railway station. This is a composite retail market and covers an area of 2593 square yards.

Erskine Road Municipal Market: The market popularly known as Null Bazar market is one of the oldest municipal markets in the city opened in 1837 for the sale of fruits and vegetables. The present building was built in 1867.

The market is situated between Sardar Vallabhbhai Patel Road and Erskine Road and is now a full-fledged composite retail market dealing in vegetables, fruits, flowers, mutton, fish, poultry and eggs. The market is considered to be the second important market in the city and covers an area of 5494 sq. yards. Fruit and vegetable vendors have formed a street market on Erskine Road. A small piece of land admeasuring 304 sq. yards was earmarked for the extension of the market.

Bhuleshwar Municipal Market: This is an old market constructed in the year 1897 and is situated at the corner of Bhuleshwar Road and 1st Bhoiwada Lane. It occupies an area of about 1419 sq. yards. The market is equipped with 189 vegetable stalls, 13 outside shops and 16 spaces. In the development plan it was proposed to start an open market to relieve the congestion in the market.

Chowpatty Municipal Market: This is a composite municipal retail market constructed in the year 1927 off Babulnath Road to serve Chowpatty, Walkeshwar and Malabar Hill area. The market covers an area of about 4164 sq. yards. The building of the market is constructed on modern lines and serves the rapidly developing areas of Malabar Hill and Walkeshwar.

Mahatma Gandhi Market: The market was constructed in about 1960 at King's Circle near the King's Circle railway station. It is on a plot

* The details of retail municipal markets are given under ' Municipal Markets '.

admeasuring 3648 sq. yards. Two cloth markets have been accommodated in the front portion of the building while in the rear portion, vegetables, mutton, fowls, eggs and fish sections are situated. The total stallage capacity of the market is about 250. The market consists of 171 cloth shops, 14 outside shops, 50 vegetable stalls, 6 mutton stalls, one ice stall, one fowls and eggs stall. Besides, the market is also equipped with a department store, a canteen and a store.

The shopkeepers trading in cloth sell readymade garments, sarees etc.

Pork Market, Marine Lines: This is an old municipal market situated on Cowasji Hormasji street with an area of about 122 sq. yards. Prior to the establishment of Arthur Road Slaughter House in 1915, pig slaughtering was also undertaken in this market. The market has only three stalls. For its expansion, the adjoining area admeasuring about 660 sq. yards was reserved in the Development Plan of the Municipal Corporation.

Worli Municipal Market: This composite retail market was established in 1942 to cater to the needs of the newly developed localities in the vicinity of Worli Hill, Worli Sea-face, and along Dr. Annie Besant Road.

Andheri Market: This is a composite retail market with an arrangement for local wholesale business. It is situated on Swami Vivekanand Road, a furlong away from Andheri railway station. The area admeasures about 7250 sq. yards and is occupied by several structures. The main structure is utilized as vegetable market. An open space admeasuring approximately $60' \times 60'$ at south-west corner is kept for wholesale business in vegetables. The fish squatters are provided platforms in an open shed in the rear, behind which is a mutton section is housed in a masonry structure. Under the Development Plan, the adjoining area admeasuring about 2 acres is reserved for the expansion of this market.

Consumer Co-operative Societies: A co-operative enterprise is one which belongs to the people who use its services, the control of which rests equally with all the members and the gains of which are distributed to the members in proportion to the use they make of its services. A consumer co-operative society associates consumers on this basis for the supply of some of the goods and services necessary to satisfy their needs.

During the Second World War, India like other countries, naturally faced an acute shortage of food, and for the first time in the nation's annals, food had to be distributed on the rationed basis. Tendency towards hoarding and blackmarketing had reached its climax. It was at this critical time that some social workers felt it necessary to organise formation of several co-operative societies. This helped to certain extent in overcoming the difficulties experienced during the war time.

Mumbai Kamgar Madhyavarti Grahak Sahakari Mandal Ltd.: The Mandal decided to form and organise a consumers' co-operative society. Accordingly, Mumbai Kamgar Central Consumers Co-operative Society was started in the year 1948 with a working capital of over 5,000 rupees and 77 members on its roll. The special feature of this society was that the workers in the textile mills took a leading part in collecting working capital of the society.

Soon after Independence, in view of the increase in agricultural production, controls were lifted, as a result of which a number of co-operatives suffered losses. Some of the societies which had suffered a loss were taken over by the Mumbai Kamgar Society, and slowly the activities of the society extended all over Bombay. The society after its working of 15 years was selected as a central wholesale society by the Government and all primary societies from the central part of Bombay were affiliated to the society and it came to be known as the Mumbai Kamgar Central Wholesale Consumers' Co-operative Society.

In March 1968, the society started a departmental store known as Apna Bazar situated at Naigaum. In March 1969, another departmental store (although of small size) was started in Fort area. The membership of the society during 1975-76 stood at 8699, of which 8664 were individuals, 34 primary societies and Government. The list of activities of the Mumbai Kamgar Society in 1975 comprised 2 departmental stores (Apna Bazar*), 2 medical stores, 20 grocery and provision shops, 46 primary societies affiliated to the society, 1 spices factory at Taloja-Panvel, 1 wholesale section and 1 dairy at Chalisgaon. The society sells about 3500 litres of milk every day brought from Chalisgaon Dairy. The society also undertakes seasonal sales of various kinds such as grapes, mangoes, pineapples, umbrellas, crackers, woollen blankets, etc. The society has also recently undertaken the work of distribution of text books published by the Maharashtra State Text Book Bureau.

The total turnover of business of the society during 1975-76 was Rs. 11.5 crores which included wholesale as well as retail trade and supply of the material to canteens in factories.

Apna Bazar—Departmental Stores: The main departmental store of the society is situated at Naigaum in Central Bombay. Apna Bazar at Naigaum was started in 1968 whereas at Fort was started in 1969. The store at Naigaum has twenty-four sections which include grocery, leather products, medicines and various articles ranging from textiles to T.V. sets.

* Recently three more departmental stores have been established at Mulund, Matunga and Andheri.

The building of the Apna Bazar at Naigaum is owned by the society and the total cost of the premises is about Rs. 14 lakhs. The departmental store at Naigaum also runs a health centre where doctors and specialists in different spheres of medical science offer their services at nominal charges. The optical section of the departmental store offers free eye examination. Besides, it also organises exhibitions and documentaries for the benefit of the consumer.

The details of turnover of the two departmental stores *viz.*, Apna Bazar at Naigaum and Fort are given below:—

(Rs. in lakhs)

Name	Total Sales	
	1973-74	1974-75
Apna Bazar, Naigaum	2,27·91	2,79·81
Apna Bazar, Fort	70·41	98·57

The total turnover of the branches amounted to Rs. 2,81·42 lakhs during 1974-75, representing an increase of Rs. 51·57 lakhs over the turnover during 1973-74.

The wholesale section of the society was established in 1963, the sales of which amounted to Rs. 1,82·02 lakhs during 1974-75. The turnover showed a steep rise of Rs. 40·37 lakhs over the previous year's figure. The business in this section includes supplies made to the primary societies as well as other wholesale business. Besides the society has started various new schemes such as Apna Bazar bonus stamp scheme, savings scheme for purchases of utensils, etc.

The position of membership and paid-up capital of the society as on 30th June 1975 was as follows:—

Type of Member	Number	Paid-up Capital (Rs).
Government	1	12,54,000
Affiliated Societies	33	12,330
Individuals	8,351	5,24,520
Total ..	8,385	17,90,850

Besides, there are many other departmental stores run by private owners in the city.

Hawkers : The problem of hawkers in Bombay is as old as the process of urbanisation. The hawker is a person who hawks or exposes for sale in any public street any article under Section 313A of the Bombay Municipal Corporation Act (III of 1888). Similarly a person who uses his skill in any handicraft for rendering service to the public in any public place or a public street is also considered as a hawker, such as cobbler, barber, typist etc. under Section 313B of the Bombay Municipal Corporation Act.

In Bombay, the control over hawkers was first contemplated in 1910, when the then Government of Bombay pointed out that the hawkers were causing obstruction on footpaths. However, actual licensing of hawkers was not thought of till 1921. Now, the hawkers are issued licences under Section 313A or 313B of the Bombay Municipal Corporation Act. Goods of the unauthorised hawkers are removed under Section 314, and the same are redeemed on payment of removal charges fixed under the Act. The number of hawkers increased after 1947-48 when many refugees took to this profession. Marketing facilities in Bombay are also inadequate as compared to the demand of population. Therefore a section of those unemployed and those who could not start their business in a shop have resorted to hawking. With the rapid urbanisation the problem of hawkers and especially the removal of unauthorised hawkers is becoming more and more complex. The unauthorised hawkers are mainly found in front of municipal or private markets, schools and railway stations, at traffic junctions and in commercially congested and thickly populated areas, and the people find it cheaper and convenient to purchase the goods from the hawkers than from the shops and markets.

In Greater Bombay, there are more unauthorised hawkers than authorised hawkers. It is not possible for the Bombay Municipal Corporation to remove all of them or to regularise all of them by giving licences. The present problem of unauthorised hawkers is not a new one. In fact it started in 1921, and from time to time stringent actions against hawkers, by way of encroachment removal action, with limitation of issue of licences, have been alternated with liberal issue of licences. But neither of these measures has been able to deal with the problem of removal of unauthorised hawkers effectively. Whatever policy has been followed, the problem has remained unsolved.

In February 1964, the problem of hawkers came up before the Bombay Municipal Corporation and a declaration was made by the then

Commissioner about suitably modifying the policy in respect of issue of licences so as to provide more and more licences for hawkers by creating more reserved areas. A committee was appointed by the Corporation in March 1964 and again in May 1969, but the problem remained unsolved.

The problem of unauthorised hawkers is tackled in two ways by issuing licences, and by removal of the goods of the unauthorised hawkers. To solve the problem of hawkers by way of issuing licences, licence fees are prescribed under rules. These authorised hawkers are given folder licences with their photographs. For the implementation of removal of goods of unauthorised hawkers, every ward has been given one encroachment removal van. The goods of unauthorised hawkers are seized by the municipal staff with the help of encroachment removal van and the seized goods are removed to the godowns. The seized goods are allowed to be redeemed if the parties pay resumption charges. Besides, at focal points, where the nuisance is at its peak a preventive squad is posted so as to prevent hawkers from encroaching upon the roads and footpaths.

The following list gives an idea about the rate of licence fee charged by the Corporation:—

Schedule of fees for squatters and hawkers in 1972

Category	Rate
	Rs.
1. Itinerant Hawkers	2·00
2. Roving Handcarts—	
(*i*) For 1 sq. metre (*i.e.* new size of 4′ × 2½′) ..	10·00
(*ii*) For 1·5 sq. metre (*i.e.* old size of 5′ × 3′) ..	
3. Itinerant hawkers using vehicles moved by machinery or drawn by animals.	10·00
4. Stationary Handcarts—	
(*i*) For 1 sq. metre (*i.e.* new size of 4′ × 2½′) ..	15·00
(*ii*) For 1·5 sq. metre (*i.e.* old size of 5′ × 3′) ..	20·00

Category	Rate
	Rs.
5. Squatters in Reserved Area—	
(*i*) For area upto 1 sq. metre	10·00
(*ii*) For every additional 0·1 sq. metre or part thereof.	1·00
[Squatters at Chowpatty reserved area are charged at double the above rates.]	
6. Cobbler	5·00
7. Fees when *nokarnama* is granted ..	Double the usual fees.
8. Fees when a substitute is allowed during the leave period.	5·00 in addition to usual fees.
9. (*i*) Change in commodity (*ii*) Change in pitch (*iii*) Change in name ..	5·00 every time per application.
10. Additional charges when fees are paid on quarterly basis but after the 10th day of the quarter or monthly basis.	5 paise in a rupee.

In case of squatters, sale of fifteen kinds of foodstuffs and 26 types of non-foodstuffs have been allowed by the Corporation; while for the moveable hawkers, hawking in only 6 types of foodstuffs and 16 types of non-foodstuffs have been allowed by the Corporation.

The Table No. 25 shows the ward-wise statistics of hawkers in Greater Bombay as on 31st March 1972.*

* *Hawkers' Problem in Bombay* (Licence Department, Municipal Corporation of Greater Bombay, 1972).

TABLE No. 25

WARD-WISE STATISTICS OF HAWKERS IN GREATER BOMBAY AS ON 31ST MARCH 1972

Ward	Total No. of reserved areas in the Ward	Total approved strength of the reserved areas in the Ward			Number of licences granted			Number of existing vacancies		
		Pitch licences	Stall licences	Stationary handcarts	Pitch licences	Stall licences	Stationary handcarts	Pitch licences	Stall licences	Stationary handcarts
A	68	859	155	19	458	135	19	401	20	....
B	52	596	94	65	420	93	61	176	1	4
C	75	436	321	70	394	321	70	42	....	....
D	33	217	628	16	126	614	16	91	14	....
E	54	90	271	30	82	270	26	8	1	4
F/North	46	179	1,339	6	128	784	6	51	555	....
F/South	21	15	182	11	15	179	11	....	3	....
G/North	27	165	379	4	136	361	4	29	18	....
G/South	22	265	163	10	162	162	10	103	1	....
H	21	83	130	80	83	130	80	....	....	....
K	26	146	163	8	130	161	8	16	2	....
L	12	14	56	....	7	45	....	7	11	....
M	7	3	205	....	3	49	....	....	156	....
N	8	124	56	....	106	56	....	18	....	....
T	4	3	184	9	3	183	9	....	1	....
P	5	32	1	1	32	1	1	....	....	....
R	6	6	5	1	6	5	1	....	....	....
Total ..	487	3,233	4,332	330	2,291	3,549	322	942	783	8

MUNICIPAL MARKETS

Every municipal ward is equipped with one or more markets. Some are owned and managed by private owners while the remaining are owned by the Corporation. The establishment and development of markets in Bombay have a long history. The first market in Bombay appears to have been established for the sale of fruits, vegetables and flowers in 1696 within the Fort. The dealers handling the sale of those commodities were permitted to occupy the market, free of rent or any other impost. In 1769, two large sheds were constructed on the same site, one for meat and fowls and another for fruits and vegetables. After seven years, a market known as Mohamed's market was established at Sheikh Memon Street, which was later destroyed in fire, and rebuilt in 1809 as Duncan Market. In 1794, a mutton market was erected at a cost of Rs. 2,940. In 1803, after the great fire at a site in the Fort, the Governor's old horse stable was converted into a mutton and vegetable market. In about 1837, a market for fruits and vegetables was erected at Erskine Road. A number of markets gradually sprang up, and upto 1865 there were five municipal markets and one private market in Bombay. They were : (i) Green Market on Sheikh Memon Street, (ii) fish and mutton market at Bori Bunder, (iii) beef market and slaughter house on Butcher Street, (iv) a composite market at Null Bazar, (v) a private market on Abdul Rehman Street, and (vi) an enclosure which was known as bread market on Mody Street for the provision of the North Fort which was constructed in 1847. In 1865, the then Municipal Commissioner, Mr. Arthur Crawford helped in improving the marketing facilities by erecting a general market known as 'Arthur Crawford Market' on the plot obtained from Government. In 1868, the private market at Bhuleshwar was gutted by fire and a new municipal market was built in its place.

In 1893, three more markets were built to meet the wants of the populace in different localities and four others were subsequently erected. In 1909, the city had 12 municipal markets, the chief of which were Arthur Crawford Market, the Erskine Road (or Null bazar) Market and Bhuleshwar Market. Similarly, the first slaughter house was constructed in the year 1867, just outside the then limits of the city, at Bandra. It used to meet the local demand for 500 sheep and goats and 50 cattle per day. Later, in 1915, a slaughter house was established on Arthur Road. In 1927, a composite municipal retail market known as Chowpatty Market was constructed on Babulnath Road. In 1933, the Garamkhana Market was started at Lalbaug as a private market, and afterwards in 1958, the same was taken over by the Municipality. Subsequently, quite a number of composite markets as well as the wholesale markets were constructed by the Municipal Corporation in various parts of the city. As

a result of the merger of suburban and extended suburban areas, new markets have also been constructed in various parts of Greater Bombay. With a view to rehabilitate the refugees from Pakistan, who migrated to Bombay and who were mainly dependent on cloth business, a separate market was constructed near King's Circle Station and was named as the Mahatma Gandhi Market. This market is now considered as an important market for the purchase of cloth in the northern part of the city.

In 1983-84, there were in all 96 markets in Greater Bombay, of them 79 were owned and managed by the Municipal Corporation. Almost every municipal ward is equipped with two or more municipal markets, 'K' municipal ward being equipped with the largest number of municipal markets.

The relative position of markets, during 1983-84 is given below :—

Unit	No. of		Licences issued for outside shops (No.)	Revenue (Rs.)	Expenditure	
	Municipal Markets	Private Markets			Establishment (Rs.)	Maintenance (Rs.)
(1) City ..	35	10	413	1,74,27,400	81,11,225	66,97,205
(2) Eastern Suburbs.	14	2	314	17,78,460	12,23,485	3,83,290
(3) Western Suburbs.	30	5	399	3,42,180	30,46,750	3,05,30,530
	79	17	1,126	2,23,27,670	1,23,81,460	3,76,11,025

The following list of ward-wise markets gives an idea of the dispersal of municipal markets in Greater Bombay, during 1984 :—

Municipal Ward	No. of Municipal Markets	Municipal Ward	No. of Municipal Markets
A ..	4	G/South ..	4
B ..	2	K ..	10
C ..	4	P ..	4
D ..	2	R ..	5
E ..	8	L ..	3
F/North ..	3	M ..	3
F/South ..	5	N ..	5
G/North ..	5	T ..	2

Total number of Municipal Markets .. 79

The distribution of outside meat shops in different municipal wards in 1984 is given below :—

Sr. No.	Ward	Mutton	Beef	Pork	Cold storage	Total
1	A	15	11	3	43	72
2	B	17	12	2	38	69
3	C	13	8	2	54	77
4	D	9	6	2	40	57
5	E	16	50	2	3	71
6	F/South ..	8	6	1	14	29
7	F/North ..	9	7	..	10	26
8	G/South ..	15	10	2	7	34
9	G/North ..	27	22	..	28	77
10	H	35	28	2	63	128
11	K	74	38	3	25	140
12	P	42	14	..	9	65
13	R	15	7	..	7	29
14	L	30	57	..	4	91
15	H	34	15	..	7	56
16	S	..	..	..	..	..
17	T	31	8	..	12	51
	Total ..	424	362	19	398	1,203

Stall-spaces in the Municipal Markets : In addition to the regular stalls, there are stall spaces in the municipal markets. These spaces provide the facility to those persons who undertake day to day business. Spaces provided on daily payment basis are also continuously occupied throughout the year.

Table No. 26 showing statistics of municipal markets in Bombay city throws a light on the size and composition of the markets, in 1976.

TABLE No. 26

STATISTICS OF MUNICIPAL MARKETS IN GREATER BOMBAY, 1976

Municipal Market	Number	Municipal Market	Number
A Ward—		2. Fort Market—	
1. Colaba Market—		(*a*) Outside shops ..	11
(*a*) Vegetable stalls ..	2	(*b*) Spaces ..	5
(*b*) Mutton stalls ..	17	(*c*) Mutton stalls ..	46
(*c*) Spaces ..	22	(*d*) Vegetable stalls ..	108
(*d*) Beef stalls ..	4	(*e*) Number of spaces on daily charges.	12
(*e*) Number of spaces on daily charges.	14		

TABLE No. 26—*contd.*

Municipal Market	Number
3. Mahatma Jyotiba Phule Market —	
(*a*) Vegetable stalls ..	570
(*b*) New spaces at scale shed.	4
(*c*) Spaces ..	3
(*d*) Mutton stalls ..	44
(*e*) Outside shops at fish section.	2
(*f*) Beef—(retail) ..	104
(*g*) Beef—(wholesale)	37
(*h*) Godowns ..	20
(*i*) Fowl rooms ..	33
(*j*) Old office rooms	35
(*k*) New office (New Building)	14
(*l*) Bird shops ..	18
(*m*) Number of spaces on daily charges.	48
4. Chhatrapati Shivaji Maharaj Market—	
(*a*) Fish *pedhi* ..	22
(*b*) Ice stalls ..	6
(*c*) Outside shops ..	4
(*d*) Canteen ..	1
(*e*) Waiting room ..	1
(*f*) No. of spaces on daily charges.	24
B Ward—	
1. Masjid Bunder Market—	
(*a*) Vegetable stalls ..	4
(*b*) No. of spaces on daily charges.	80
2. Dongri Market—	
(*a*) Vegetable stalls ..	82
(*b*) Outside shops ..	31
(*c*) Mutton stalls ..	19
(*d*) Eggs and fowls ..	8
(*e*) Number of spaces on daily charges	8
C Ward—	
1. Mirza Galib Market—	
(*a*) Old vegetable stalls.	356
(*b*) Outside shops ..	78
(*c*) New vegetable stalls.	117
(*d*) Mutton stalls ..	110
(*e*) Head and liver stalls	74
(*f*) Egg stalls ..	8
(*g*) New spaces ..	46
(*h*) No. of spaces on daily charges.	9
2. Bhuleshwar Market—	
(*a*) Vegetable stalls ..	189
(*b*) Outside shops ..	13
(*c*) Spaces ..	16
(*d*) Number of spaces on daily charges.	6
3. Pork Market (Dhobi Talao)—	
Stalls ..	3
D Ward—	
1. Chowpatty market (new).—	
Vegetable stalls ..	49
2. Chowpatty market (old).—	
(*a*) Vegetable stalls ..	82
(*b*) Outside shops ..	31
(*c*) Mutton stalls ..	19
(*d*) Eggs and fowls ..	8
(*e*) Number of spaces on daily charges.	7

TABLE No. 26—*contd.*

Municipal Market	Number
3. Lokmanya Tilak Marke—	
(*a*) Vegetable stalls ..	155
(*b*) Mutton stalls ..	19
(*c*) Outside shops ..	117
(*d*) Fowls cutting stalls.	2
(*e*) Space for fowls cutting.	1
E Ward—	
1. Babu Genu Market—	
(*a*) Beef stalls ..	6
(*b*) Mutton stalls ..	12
(*c*) Pork stalls ..	4
(*d*) Fowl stalls ..	3
(*e*) Tea Stall ..	1
(*f*) Poultry stalls ..	2
(*g*) Number of spaces on daily charges.	35
2. Tank Bunder Market—	
(*a*) Outside shops ..	10
(*b*) Mutton stalls ..	3
(*c*) Number of spaces on daily charges.	6
3. Ghamaji Manaji Market—	
(*a*) Total stalls ..	33
(*b*) Number of spaces on daily charges.	14
4. Sant Sawata Market—	
(*a*) *Pedhis* ..	15
(*b*) Canteen ..	1
(*c*) Godowns ..	15
(*d*) Number of spaces on daily charges.	10
5. Sant Gadge Maharaj Market—	
(*a*) 'A' line vegetables	152
(*b*) 'B' line vegetables	90
(*c*) 'F' line fruits ..	143
(*d*) 'C' line fruits ..	60
(*e*) Number of spaces on daily charges.	93
6. Kamathipura Market—	
(*a*) Vegetable stalls ..	10
(*b*) Outside shops ..	5
(*c*) Spaces ..	36
(*d*) Mutton stalls ..	32
(*e*) Number of spaces on daily charges.	7
F South Ward—	
1. C.J. Shah Market—	
(*a*) Outside shops ..	18
(*b*) Mutton stalls ..	8
(*c*) Dry fish stalls ..	65
(*d*) Vegetable stalls ..	64
(*e*) Number of spaces on daily charges.	49
2. Elphinstone Road Market—	
(*a*) Vegetable stalls ..	13
(*b*) Mutton stalls ..	25
(*c*) Outside shops ..	2
(*d*) New egg stall ..	1
(*e*) Number of spaces on daily charges.	124
3. Sewri Market—	
(*a*) Total stalls ..	18
(*b*) Number of spaces on daily charges.	48
F North Ward—	
1. Mahatma Gandhi Market—	
(*a*) Cloth stalls ..	171
(*b*) Outside shops ..	14
(*c*) Vegetable stalls ..	50
(*d*) Mutton stalls ..	6
(*e*) Canteen ..	1

TABLE No. 26—*concld.*

Municipal Market	Number
(*f*) Ice stall ..	1
(*g*) Fowl Egg ..	1
(*h*) Departmental store. ..	1
2. Lal Bahadur Shastri Market—	
(*a*) Inside stalls ..	147
(*b*) Outside shops ..	16
(*c*) Canteen ..	1
(*d*) Number of spaces on daily charges.	Nil
3. Hemant Manjarekar Market—	
(*a*) Cloth stalls	100
(*b*) Fish stalls ..	11
(*c*) Vegetable stalls ..	11
(*d*) Number of spaces on daily charges.	44
G North Ward—	
1. Old Dadar Market—	
(*a*) Mutton stalls ..	12
(*b*) Vegetable stalls ..	203
(*c*) No. of spaces on daily charges.	10
2. Agar Bazar Market—	
(*a*) Total stalls ..	89
(*b*) No. of spaces on daily charges.	3
3. New Dadar Market—	
(*a*) Vegetable stalls ..	186
(*b*) Mutton stalls ..	2
(*c*) New vegetable stalls.	16
(*d*) Plantain ..	13
(*e*) No. of spaces on daily charges.	60
4. Gopi Tank Market—	
(*a*) Mutton stalls ..	11
(*b*) Egg stall ..	1
(*c*) Inside stalls ..	62
(*d*) Outside stalls ..	80
(e) Zatka mutton stalls.	5
(*f*) No. of stalls on daily charges.	4
G South Ward—	
1. New Worli Market—	
(*a*) Mutton stalls ..	4
(*b*) Fruits and vegetable stalls.	61
(*c*) Egg stalls ..	11
(*d*) Outside shops ..	28
(*e*) Cold storage space	1
(*f*) Fowl stalls ..	4
(*g*) Canteen ..	1
2. Shantabai Hule Market (Prabhadevi)—	
(*a*) Mutton stalls ..	8
(*b*) Outside shops ..	1
(*c*) Number of spaces on daily charges.	35
3. Old Worli Market—	
(*a*) Mutton stalls ..	28
(*b*) Fowl stalls ..	4
(*c*) Egg stalls ..	5
(*d*) Outside shops ..	10
(*e*) Number of spaces on daily charges.	49
4. Prof. D. Khamkar Market—	
(*a*) Mutton stalls ..	18
(*b*) Outside shops ..	6
(*c*) Number of spaces on daily charges.	55

Markets and slaughter houses are a good source of revenue to the Municipal Corporation. In the year 1970-71 there were 45 markets in Bombay city, of which 31 were municipal and 14 private markets. The licence fees recovered from the owners of the private markets amounted to Rs.93,660 and from stalls and shops in Municipal Market amounted to Rs. 19,404. In the same year there were 21 municipal and 2 private markets in the suburbs. One open air market was also started at Jogeshwari from 1st November 1969. The licence fees received from the markets in the suburban area amounted to Rs. 42,344.40, while the licence fees received from markets in extended suburbs amounted to Rs. 17,757.10. In the extended suburbs, there were 10 municipal markets including three open air markets and six private markets licensed by the Corporation.

A licence fee of Rs. 24 is charged (1983-84) for each stall in the municipal market. The charges are also levied on the commodities brought in the market for sale. These charges are generally based on the weight of the load brought for sale. A licence fee of Rs. 250 per annum is charged for a mutton beef pork stall in the private market. Market-wise rates of licence fees charged for stalls in some of the private markets are given below:—

Name of Private Market		Locality	Licence fee in 1983-84 (Rs.)
Gujari Bazar	..	Dr. Ambedkar Road	3602.50
Chira Bazar	..	Jagannath Shankarshet Road	9168.50
Habib Market	..	Baburao Jagtap marg	2318.80
Bhoiwada Market (Shetye Market)	..	Bhoiwada	4615.15
Fancy Market	..	Morland Road	4229.50
Upper Mahim Market	..	Near Savarkar Marg	3411.10
Dadar Market	..	Dadasaheb Phalke Road (C.R.)	2416.70
Wadala Market	..	Katrak road	4620.00
Meher Market	..	Byculla	64047.50
Open Air Market	..	Lamington Road	312.40

The total revenue from all the markets in Greater Bombay is steadily increasing every year and in 1983-84 the total revenue from markets amounted to Rs. 2.23 crores.

WAREHOUSING

Storage is important from the point of view of timely supply of goods, controlling market fluctuations and good returns to the traders. The warehouse receipts are a security on the basis of which the producers get money from the banks. At present the Central Warehousing Corporation and the Maharashtra State Warehousing Corporation provide various storage facilities. The Government of Maharashtra since the introduction of statutory rationing in Bombay and Thane areas have entrusted the storage of rationed foodgrains to these corporations.

Maharashtra State Warehousing Corporation : It possesses three godowns in Bombay at Dadar, Wadala and Sewri. The godowns at Dadar and Wadala were established on 22nd and 24th February 1966 with the storage capacity of 14,908 and 8,097 tonnes, respectively, and the godown at Sewri was established on 1st June 1969 with a storage capacity of 3,097 tonnes. In these godowns are stored wheat, rice, jowar, bajara, sesame, oil-seeds, and vegetable oil.

As the Corporation is working as an agent of Government of Maharashtra for handling and storage of foodgrains under public distribution scheme, no other party is allowed to store foodgrains in these godowns. The foodgrains are supplied from the central pool by Food Corporation of India from its various depots as well as from the docks directly. The State Government some times bring locally procured foodgrains from the surplus districts. Besides, the Corporation also makes arrangements to bring food-grains from the other surplus States such as Punjab, Haryana, Andhra and Madhya Pradesh. These foodgrains are then delivered through the organised bodies to the rationing shops in Bombay and Thane rationing areas, for distribution.

The Maharashtra State Warehousing Corporation follows modern methods of scientific storage and also gives preventive treatment to the stock. Besides, wherever necessary cleaning is undertaken and stocks are arranged in such a way that no inconvenience for handling and inspection of stocks is caused. The activities of the Corporation include loading and unloading of trucks and wagons, 100 per cent weighment of stock, scientific storage, standardisation and issues of foodgrains for public distribution.

Central Warehousing Corporation : The Central Warehousing Corporation has its regional office and 13 warehouses in Bombay. The details

of these warehouses such as their location and storage capacity are given below:—

Location of Warehouse	Year of establishment	Commodity stored	Storage capacity (in standard bags)
1	2	3	4
1. Wadala ..	July 1971 ..	Chemicals, skim milk powder, steel bar.	71,250
2. Matunga ..	April 1971 ..	Dairy, machinery cases and stainless steel coils.	6,335
3. Elphinstone Road ..	September 1971	Ferrous metals ..	42,000
4. Cotton Green-TW-I	October 1975	Imported goods ..	2,69,834
5. Cotton Green-TW-II	October 1973	Exported goods ..	96,400
6. Bhandup ..	July 1975 ..	Skim milk powder, chemicals and newsprint reels.	44,200
7. Mulund (West) ..	July 1975 ..	Skim milk powder, N.P. reels.	1,52,200
8. Mulund ..	June 1977 ..	Bonded goods ..	55,000
9. Andheri ..	September 1975	Electronic goods ..	51,640
10. Goregaon ..	April 1977 ..	Exported goods ..	37,220
11. Borivli ..	February 1966	Foodgrains ..	2,50,690
12. J-Shed, Fosbery Rd.	February 1966	Foodgrains ..	79,050
13. New Parel ..	June 1966 ..	Foodgrains ..	99,030

The commodities in all these warehouses are stored in a scientific way. The State Government, Government undertakings (State and Central), co-operative organisations as also private parties are allowed to store their commodities in these warehouses.

The Central Warehousing Corporation besides storing, offers a number of other facilities to its depositors such as credit, handling and transport, clearing and forwarding, insurance and disinfection extension service.

TRADE ORGANISATIONS

The system of different categories of traders representing their problems through one or different organisations is very old. The first chamber of commerce was established in India in 1834. During the nineteenth century, only nine trade organisations existed in Bombay. The chief among these commercial associations was the Bombay Chamber of Commerce established in 1836 . But as these organisations were mostly founded with the aims and objectives similar to those of British Chamber

of Commerce, they mainly helped British traders and thereby developed the British trade in India.

The period between 1860 and 1875 marked the establishment of three associations *viz.*, Native Share Brokers' Association (1868), Underwriter's Association (1872), and Bombay Millowners' Association 1875. As the traders' representation in the Millowners' Association was weak and as there was no other association dealing with problems of clothtraders, Bombay Native Piece-Goods Merchants' Association was founded in 1881 at Bombay. The association helped to solve the problems of local cloth dealers through proper representation.

In 1896, the Marwadi Association now known as the Hindustan Chamber of Commerce was founded at Bombay. This was followed by a number of associations in Bombay: the important among them were the Grain Merchants' Association established in 1899, Sugar Merchants' Association (1900), and Saraf Merchants' Association established in 1901. With almost the same aims in view as those of the above cited association was founded the Marwadi Chamber of Commerce which is now known as the Western India Chamber of Commerce. Upto 1907, the trade associations in Bombay were dominated by Europeans but the establishment of Indian Merchants' Chamber and Bureau at Bombay established in 1907 helped to a great extent to put an end to this practice. Its objective was confined not only to solving problems of local traders but to help traders and industries all over the country.

Before World War I, a large number of trade associations were founded the important amongst them being the Bombay Native Piece-Goods Merchants' Association and the Hindustani Native Piece-Goods Merchants' Association. The former used to represent the sellers of cloth, whereas the latter used to represent mainly the commission agents. The other associations though small in membership also used to play an important role in trade and commerce. They were: Bombay Hosiery Merchants' Association, Memon Chamber of Commerce, Woollen Merchants' Association, Yarn Merchants' Association, Bombay Commission Agents' Association, Bombay Shroffs' Association, Copper Merchants' Association etc. These associations used to hold mutual discussions, meetings, and joint arbitration. Besides, as the *hundis* were in common use in the trade activities, these associations also used to formulate the rules for *hundis* through compromise or joint agreement.

The Chambers of Commerce and trade associations are of great importance to the country in general, but more so to the commercial operations of the individual businessmen in particular. It is therefore proposed to furnish the history and functions of a few leading chambers of commerce and trade associations in Bombay.

Chambers of Commerce : There are about 14 Chambers of Commerce in Bombay of which some are described as under :

Maharashtra Chamber of Commerce : The Maharashtra Chamber of Commerce was established with its head office at Bombay in October 1927 with the object of establishing friendly relations among merchants and factory owners in Maharashtra, and to safeguard their interests. Thus the idea of establishing a chamber of commerce for the first time for the region comprising the Marathi speaking districts and the neighbouring Princely States in and around the Bombay Presidency was materialised. The founder members who were 36 in number mostly included well-known personalities in business and industry.

The affairs of the chamber are conducted by a managing committee comprising a president, vice-presidents, trustees and members. There are various sub-committees of the chamber. The chamber is affiliated to the Federation of Indian Chambers of Commerce and Iudustry, New Delhi and various all India and international bodies.

The Maharashtra Chamber is represented on important public bodies such as Bombay Port Trust, Zonal Railway Users' Consultative Committees for Central and Western Railways, Divisional Railway Users' Consultative Committees for Central and Western Railways; R. A. Podar College of Commerce and Economics Advisory Committee; Central Excise Regional Advisory Committee, at Bombay and Pune; Post and Telegraphs Regional Advisory Committee; Wadi Bunder Consultative Committee, Central Railway; University Employment Information and Guidance Bureau; Station Consultative Committee; Standing Committee for State Industrial Advisory Committee; State Advisory Committee on Food and Drugs; and Income Tax Advisory Committee, Pune Region. The members of the chamber comprise big industrialists, trade associations, exporters, importers and merchants dealing in different types of trade. The members are dispersed throughout the State and numbered 2,047 in 1976. Of these 655 were in Greater Bombay.

Bombay Chamber of Commerce and Industry : The Chamber of Commerce, as it was then called, was established in 1836 as an unregistered association under the auspices of Sir Robert Grant who was then the Governor of Bombay Presidency. The Chamber was incorporated under the Indian Companies Act, 1913 in 1924 as a Company limited by guarantee. In 1956, the name of the Chamber was changed to the Bombay Chamber of Commerce and Industry. Next to the Bombay Branch of the Asiatic Society, the Bombay Chamber is the oldest institution of its kind in Western India.

The aims and objectives of the Chamber are, (i) to encourage and promote a friendly feeling and unanimity among businessmen and industrialists in the general interests of the State and the country; (ii) to collect and circulate information on all matters of general commercial and industrial interests; (iii) to obtain the removal of all acknowledged grievances affecting mercantile and industrial interests; (iv) to receive and decide references on matters of usage and custom in dispute; (v) to communicate with Government and other public authorities, with similar associations in other places and with individuals on all subjects of general mercantile and industrial interests; and (vi) to arbitrate between parties willing to refer to and abide by the decision of the Chamber. The Chamber is the mouthpiece of its members and their most effective intermediary with Government.

The work of the Chamber can be reviewed from three aspects. Firstly, that of providing definite tangible services to the commercial and industrial communities on a purely material basis such as for example dissemination of information including Government notifications and the like. Secondly, by providing forum for redressing grievances in all matters governing relations between customers, merchants and many other authorities and organisations. Finally, as convenient medium for the exchange of ideas on matters bearing on the policies and procedures of Government where they affect the commercial and industrial community.

The present rates of annual subscription are Rs. 1,250 per annum for ordinary members and Rs. 1,000 per annum for associate members. There is also entrance fee in the case of both the types of members. The esteem in which the chamber is held is evident from the steady annual growth in its membership. When the Chamber was set up in 1836, there were 25 members, of whom 10 were Indian firms. The increase in its membership from 25 original members in 1836 to 81 in 1839 to 100 in 1906, and to almost 200 in its centenary year of 1936 and 800 in 1976 seems to be parallel to the emergence of Bombay as the financial capital of the country. The Chamber is administered by a committee consisting of a president, a vice-president, and ten ordinary members. The committee is assisted by 16 sub-committees dealing with various subjects.

In 1860 the Chamber was placed in sole charge of all returns concerning the external trade of Bombay port, which resulted in reducing considerably the time involved in preparing the weekly trade returns from 45 to 13 days.

The Chamber initiated activities such as submitting an annual report, preparing reports regarding returns of trade, maintenance of machinery for settlement of disputes and arbitration. The primary function of the Chamber, as it is at present constituted, is to act as a liaison between members and State and Central Governments. The representations of the

members are compiled and forwarded to Government and information is collected from Government and disseminated to members.

The various service departments of the Chamber started so as to implement its objectives effectively and efficiently include information, labour advisory service, statistics, trade introductions, certificate of analysis and origin, weighment and measurement, arbitration, secretarial service, conducting of commercial examinations, etc.

The Chamber performs secretarial services for 9 manufacturers, and traders organisations *viz.*, the Tractor, Earthmoving, and Construction Equipment Distributors Association Ltd.; the Indian Engineering Association (Western Region); the Pharmaceutical and Allied Manufacturers and Distributors Association Ltd.; the Indian Paint Association (Western Region); the Chemical Plant and Machinery Association of India; the Automobile Dealers' Association of Maharashtra Ltd.; the Industrial Diamond Association of India; the Aviation Suppliers' and Equipment Manufacturers' Association; and the Overseas General Insurers Association (Bombay branch).

Hindustan Chamber of Commerce : The Hindustan Merchants and Commission Agents Association was established in 1897 which was then known the as Marwadi Association. This association was taken over by the Hindustan Chamber of Commerce alongwith its Marwadi Commercial High School Bhavan Trust, Bombay Hospital Trust, and Marwadi Commercial High School Education Trust.

The main object of the Chamber, besides taking the overall responsibility of Hindustan Merchants and Commission Agents Association, is to settle disputes amongst its members and also between its members and non-members. For the implementation of this objective, the Chamber has got a panel of well experienced arbitrators. A large number of traders throughout India are benefited by the arbitration machinery of the Chamber. The Chamber also guides and assists its members in their dealings with Government departments and also in matters of income tax, sales tax and railway claims.

The membership of the Chamber mostly consists of commission agents, wholesalers and semi-wholesalers in textile trade. In 1972 the number of member-firms in Greater Bombay was over 950. The Chamber is represented on the various organisations and on the sub-committees of the Federation of Indian Chamber of Commerce and Industry, New Delhi.

The annual income and expenditure of the Chamber during the year 1976-77 was the same and it amounted to Rs. 1,02,703.21. Its social activities include running of a high school and donations to Bombay Hospital and a large sum for the construction of hostel and a training

centre in Navy Nagar, Colaba for the dependents of martyrs of *I.N.S. Kukri*. Besides, the Chamber has always tried its best to solve the different problems suffered by its member dealers in the undertaking of cloth trade. The Chamber has appointed a Cloth Markets and Shops Board. The Board had increased the levy from 8 per cent in 1971-72 to 12½ per cent during 1976-77.

During 1972-73, the Chamber received 1435 *hundis* of the value of Rs. 28,32,156.46, out of which only 609 *hundis* were accepted by the Chamber.

Indian Merchants' Chamber : The Indian Merchants' Chamber was established in 1907 in Bombay in the midst of political and economic discontent then prevailing at all levels of Indian society. The pre-Independence period was marked by adverse influences which under a foreign rule were entirely uncongenial to the growth of industry, banking, trade, insurance and transport. The Chamber, while extending its support and sympathies to the political movement, itself set to the task of arousing the economic consciousness of the people through the organisation of commercial conferences and the Indian Industrial and Commercial Congress.

Its chief contribution soon after Independence lay in examining the implications of the various policies of Government under its new socio-economic programme. Since its inception, the Chamber while playing the role in the process of promoting the economic advancement and industrial development of the country has helped to enhance the position of Bombay as the nerve centre of trade, commerce and industry of the country. Today, the activities of the Chamber have expanded in diverse directions.

The Chamber has an information department which furnishes factual information on all matters concerning commerce and industry, and assists in stimulating fresh and increased trade contacts. Since 1941, the Indian Merchants' Chamber has a full fledged measurement department which is now jointly managed by the Indian Merchants' Chamber and its counterpart the Bombay Chamber of Commerce. The measurement department of the Chamber functions in the docks for measuring and weighing export cargo on the basis of which steamship companies recover the freight charges due to them from the shippers.

The Chamber has the privilege of having on its roll not only individuals, firms, joint stock companies, but also associations interested in a variety of trade and industrial activities comprising heterogeneous types of enterprises of diverse sizes and lines. At the end of 1975, there were 2,175 members and 153 associations on the roll of the Chamber.

The Chamber also tries to enrich its contribution to economic matters not only by organising business conventions, conferences, seminars

and symposia but also by holding discussions with individual economists, administrators, high officials of Governments, and delegates from abroad, on different subjects dealing with transport, communications, finance, tariff, trade, industry and taxation. The Economic Research and Training Foundation was establised in 1959 by the Chamber with a view to conducting intensive research studies in current economic problems.

The Chamber started a service centre in September 1975 at Mandvi with a view to produce better liaison between the Chamber and its constituents and to pay better attention to the difficulties and problems of trade in that area. Any trader in Mandvi area whether a member or a non-member can seek the advantage of the centre. A ladies wing of the Chamber also has been instituted. The Chamber alongwith the other organisations and leading industrialists sponsored the formation of the Fair Trade Practices Association. The Chamber possesses a well-equipped library which is open to all.

The Chamber is represented on 24 important public bodies such as State Advisory Council of Industries, Maharashtra Economic Development Council, State Board of Export Promotion, Bombay Port Trust, Advisory Council on Trade, Government of India, and other public bodies concerned with education, transport and communications.

Indo-German Chamber of Commerce : The Indo-German Chamber of Commerce, a bi-national chamber was established in 1956 under the Indian Companies Act of 1913 with its head office at Bombay. Besides, the Chamber has its branches at New Delhi, Calcutta, Madras and Bangalore. The main object of the Chamber is to promote trade, commerce and industrial relations between India and the Federal Republic of Germany.

The Chamber aims at promoting and protecting the interests of all firms and persons engaged in reciprocal commerce between India and Germany, expanding the scope of private investment in India and increasing the volume of trade with particular emphasis on the expansion of Indian exports to Germany. Besides, the Chamber also aims at settling disputes arising out of business transactions through arbitration.

The Chamber offers a four-phased service *viz.*, (*i*) assistance in finding suitable partners in India and Germany; (*ii*) giving advice in drafting of collaboration agreements, information about Government policies and regulations on industrial collaboration, assistance in negotiations with partners advice on legal and taxation problems; (*iii*) assistance in negotiating collaboration agreements with Government authorities; and (*iv*) assistance in settling disputes arising out of collaboration agreements. The Chamber offers its own arbitration.

The activities of the chamber include services through publications, legal advice, legal assistance, information about trade fairs in Germany and other services such as undertaking translation of German papers in to english and issuing of certificates of origin.

The Chamber publishes a bi-monthly bulletin in German and English. The English edition contains economic news of interest to Indian members whereas the German edition gives news of interest to German members, regarding the economic situation and regulations in India.

The Chamber represents some of the leading German organisers of trade fairs in India. In 1977, the Chamber had a membership of 1282, of which 406 was mainly from Bombay and Pune.

In 1976, 60 Indo-German collaborations were sanctioned by the India Government of which 22 collaborations were in Bombay and Pune. Of these 22 Indo-German collaborations, two were of a financial nature.

Belgo-Indian Chamber of Commerce and Industry: The Bombay office of the Chamber started functioning from 1st May 1966 with a full-time officer in-charge to take care of the general administrative and office management work. The Belgium Government very kindly granted a subsidy to start the office, and it was mainly due to this financial support that the Bombay office started to function as a useful organisation for the promotion of trade between Belgium and India.

Since its inception the Chamber has been regularly publishing a monthly journal "Belgo-Indian Trade Review" giving information on the current trade conditions between the two countries as also on items of interest affecting export/import, business.

At present the Chamber has about 290 members on its register representing various trades and industries of which 126 are in Greater Bombay.

The chamber has an advisory committee consisting of ten members, which meets periodically to review its working and offers advice and guidance for effective functioning.

Indo-American Chamber of Commerce: The Indo-American Chamber of Commerce was established in October 1968 with its headquarters in Bombay and four regional offices at Bombay, Calcutta, Delhi and Madras. Businessmen from all parts of India are on the Executive Council of the Chamber.

The Chamber was set up for closer business dialogue between the United States and India and to promote trade and investment. The broad objectives of the Chamber are the establishment of companies based on Indo-U.S. collaboration, promotion of products and activities of its members in India and United States, collection and

dissemination of statistics and other information necessary for feasibility studies and projects and representation of the views of its members to the Government in relation to legislation and other trade measures.

The total membership of the Chamber in 1977, was 717 of which about 120 were in Greater Bombay. The Chamber is divided into east, west, north and south regions each having its own office bearers and committees to promote the objectives and activities of the Chamber. The office of the West India Council of the Chamber is at Bombay.

The Chamber publishes survey reports, booklets and news-letters regularly. It also organises seminars and symposia on wide range of topics and has a well equipped library consisting of latest Indian and U.S. publications on industries and trade. Besides, the Chamber identifies products for Indian and American exporters to sell in the United States and Indian markets, respectively. The Chamber participates in industrial fairs, exhibitions, conferences and catalogue shows. The Chamber assists engineers in India and those desirous of returning to India with suitable employment opportunities through schemes initiated for unemployed engineers by member companies. It institutes awards for outstanding export performance. The Chamber also maintains close liaison with chambers of commerce, trade and investment organisations abroad and in India.

Iron, Steel, Hardware Merchants and Manufacturers' Chamber of India: The Chamber was founded on 1st April 1949 by a band of traders, for most of whom iron and steel business was a family tradition. Since its inception, it has been able to bring into its fold importers and industrialists, exporters and manufacturers in all spheres of activity in the steel world. So as to induct within its orbit all facets of the steel community's activities the Chamber in 1961 was renamed as the Iron and Steel Hardware Merchants and Manufacturers' Chamber of India.

In 1977, the Chamber had on its roll 850 members. The membership is open to all individuals, companies, corporations, and fraternal associations who are directly or indirectly connected with iron, steel and hardware trade, in India.

The Chamber plays an important role as an information exchange and as a clearing house. The important circulars, notifications etc. are for ready reference. In addition it also publishes a bulletin every month. The Chamber has also set up its own reference library.

Whenever a dispute is referred to the Chamber for arbitration, the same is taken up for consideration by the special panel of arbitrators appointed for the purpose. The Chamber has also formulated its own approved arbitration bye-laws and has introduced its own standard contract form.

TRADE ASSOCIATIONS

Federation of Bombay Retail Cloth Dealers' Association: The Federation was established in 1943 as an apex body of the various associations of retail cloth merchants in Greater Bombay. Apart from looking after the interests of its members, the Federation has made valuable contribution to the idea of public distribution of cloth since 1944 by puting it into practice systematically through its members within the limits of Greater Bombay District.

In 1962 the Federation with the co-operation of millowners started fair price shops. In 1965, the federation also arranged for conducting fair price cloth shops approved by Government. The Federation is running 160 fair price cloth shops throughout Bombay city for distributing controlled cloth to the masses under the revised scheme of cloth distribution since 1972.

Bombay Motor Merchants' Association: The association was founded in 1921 as the Indian Motor Traders Association for dealing in petrol, tyres and to a certain extent motor accessories and spare parts. In 1928 when the strength of its membership was hardly 30, the name of the association was changed to the Bombay Motor Merchants' Association. In 1943 when its membership was 112, the Association was converted into a registered body.

During 1921 to 1942 the activities of the Association were confined to routine type of work and small complaints of its members. After the Second World War, price controls, import trade controls and other types of controls were imposed on trade, and the members needed, guidance of the Association in all these matters. The present activities of the Association include dissemination of information regarding import, customs, sales tax, income tax and such other matters which affect the trade in general. The Association makes suitable representations to the authorities about difficulties of the trade in general and of its members in particular. It also undertakes arbitration of disputes amongst its members and with dealers outside Bombay.

The membership of the Association is confined to Bombay city and suburbs only. At the end of 1975, the strength of the Association was 494 members and 11 associate members.

The Association, at the instance of the Federation of All India Automobile Spare Parts Dealers' Association was able to arrange for canalised imports of ball roller and taper roller bearings worth lakhs of rupees through licences from the State Trading Corporation for distribution to its members.

The Association has its nominees on the Indian Merchants' Chamber, All India Importers' Association and Indian Roads and Transport

Association. At the end of December 1975, the balance sheet of the Association showed an excess of income over expenditure to the tune of Rs. 12,595.63.

Petrol Dealers' Association: The Petrol Dealers' Association was established in 1935. The total membership of the Association on 31st December 1975 stood at 137, representing 156 stations. The products sold by the members comprise petrol high speed diesel oil, lubricants and greases, tyres and tubes, batteries, and other accessories. Some petrol pumps also sell auto spare parts, car radios and various auto gadgets.

Petroleum Products Dealers' Association: The Association was formed in 1971. The total number of members in 1977 was 128. The members usually deal in lubricating oils, grease, petroleum jelly, light diesel oil, furnace oil, etc.

Federation of Paper Traders' Association of India: The federation was established in 1959 to promote co-operation among its members. It strived for adopting a common policy and measures as may be necessary to safeguard the interests of the members of the Association. The Federation disseminates statistical and other useful information and knowledge amongst the members and helps them by such means as providing with library facilities, publishing or subsidising publication of technical and trade journals, books and periodicals, leaflets and such other material as may be necessary.

The Federation makes representations to State and Central Governments, public bodies and private institutions for any matter affecting paper trade in particular and takes all steps by lawful means for promoting, supporting or opposing legislation or other actions affecting the trade. In 1977, about 19 associations were affiliated to the Federation.

Electric Merchants' Association: The Association was founded in 1937. In 1977, the membership of the association stood at 486 consisting of manufacturers, wholesalers and retail dealers. The member traders are faced with various problems such as high incidence of taxation, high rate of octroi, tight money conditions, central excise, etc.

Bombay Grain Dealers' Association: The Association was established in 1913 to look after the business activities, to act as a liaison body between the members and the Government and such other activities for the welfare of the members. The membership of the Association in Greater Bombay in 1977 comprised 5000 retail dealers dealing in grains, pulses, and grocery. The Association also accepts indents and delivers foodgrains and sugar issued by the Government to about 850 authorised ration shops in Greater Bombay.

Fair Trade Practices Association: The Association was established on 2nd October 1966. The main objects underlying the establishment of the

association are to codify the existing fair trade practices, set up an effective machinery for their implementation in an organised manner and thereby create greater public confidence in and goodwill towards the business community.

By the end of December 1972 the membership of the Association was 970, of which 79 were public limited companies, 44 private limited companies, 276 individuals and business firms, 418 affiliated members and 153 associated members.

The Association undertook two surveys on 'Vanaspati' and 'Image of Indian businessmen among the housewives of Bombay'. In 1971 it was decided that the Association should select certain compact areas where a considerable amount of shopping activity takes place and to enrol as many members from amongst shopkeepers in that area as possible with the objective of ensuring maximum possible satisfactory service to the consumers residing in that area. Accordingly Dadar (West) was selected for the purpose in 1971. Based on the experience gained in Dadar area, similar effort was made in Girgaum area in 1972, and about 120 members from the surrounding areas of Prarthana Samaj, Thakurdwar, Charni Road and Vallabhbhai Patel Road were enrolled.

The Association undertakes self-regulation schemes for the supply of certain essential commodities. On the problem of ensuring equitable distribution of paper to the consumer at reasonable prices, considerable progress has been made and a scheme has been evolved in joint consultation with representatives of the Association, joint-committee of the paper industry and the Federation of Paper Traders' Association of India, as well as bulk consumers.

A self-regulation scheme for equitable distribution of truck tyres amongst truck operators in Maharashtra was introduced in 1970. When Vanaspati was in short supply, the association evolved a satisfactory arrangement to ensure fair and regular distribution of Vanaspati at fixed price. The association has been working in close co-operation with the Consumer Guidance Society. In October 1972, films on consumer interest were exhibited under the joint auspices of the Consumer Guidance Society and the Association.

The association during 1972, suffered from excess of expenditure over income, amounting to Rs. 2233.

Bombay Mudibazar Kirana Merchants' Association : The Association was established in 1909 for the promotion and regulation of wholesale *kirana* trade in Bombay city and also for the settlement of disputes between the various constituents of the trade. The association solves thousands of disputes between the buyers and sellers, agents and brokers every year. It has successfully organised the wholesale trade of grocery articles.

In 1972, the Association had on its roll 68 members, 224 brokers and 58 registered buyers.

The Association has framed rules for weighment, payment and various trade practices and has evolved machinery for the solution of various trade disputes.

PATENTS, DESIGNS AND TRADE MARKS

A patent, a design or a trade mark confer an exclusive right upon an owner or an inventor by Government. A patent relates to the invention underlying the manufacture of a vendible product, while a design relates to the external features of that product as they appeal to the consumer's eye. A trade-mark, on the other hand, relates to the good will of the manufacturer or dealer trading in the product. A patent is a grant made by the Government conferring on the grantee for a limited period of the right to exclude others from making use or selling the invention without his consent.

The origin of the modern patent system in so far as it is based on a recognition of the economic aspects of patent grants, can be traced back to the monopolistic grants made in England and certain European countries in the Middle ages in exercise of prerogative powers of the Crown. Thus a large number of patents came to be granted for the manufacture of articles of daily consumption. This led to strong condemnation of the system of granting such monopolistic privileges by the Crown and led to enactment of statutes limiting the powers of the crown. But under a modern patent system a patent is granted in accordance with the law of the country and not as arbitrary grant made by the Government. As such a patent is said to be essentially in the nature of a recognition of a proprietary right of an inventor over his invention rather than a monopoly as it is generally understood. Patents are of great value not only to the inventor but also to the manufacturer and to the general public.

Substantial legislation for the protection of inventions in India was enacted in 1856, 1869, 1888 and 1911. In the first three enactments instead of the word 'patent', the expression exclusive privilege was used. Otherwise the enactments corresponded to the legislation then in force in U.K. There was no provision for sealing a patent but the exclusive privilege which was virtually the same as a patent right, automatically accrued to the applicant on his filing a specification. The earlier enactments did not make the provision for the establishment of a patent office or for an examination of the specification or for any opposition proceedings prior to granting leave for filing the specification.

The Act of 1911 made important departures in these respects and for the first time provided for the granting of a patent and the establishment

of a patent office for matters incidental or supplementary to the granting of patents. On the basis of the final recommendations of the committee the Patent Bill, 1954, was introduced with a hope of enacting a legislation which would result in a more modern and adequate patent system for the country as early as possible.

Accordingly to regularise the patent system, Government passed in 1970 a legislation *viz.*, the Patents Act. A patent granted under the Patents Act, 1970, confers upon the patentee where the patent is for an article or substance the exclusive right by himself, his agents or licensees to make use, exercise, sell or distribute such article or substance in India.

Under the provisions of the above mentioned Act, three kinds of patents are granted: (*a*) an ordinary patent; (*b*) a patent of addition for improvement in or modification of an invention for which a patent has already been applied for or granted, and (*c*) a patent granted in respect of a convention application which is based on an application for patent in respect of the same invention made in a convention country. The term of every patent granted under the Act in respect of an invention in food, medicine or drug is for 5 years from the date of sealing of the patent or for 7 years from the date of patent, whichever is shorter. In respect of any other invention, the term is for 14 years from the date of the patent. For granting of patents for new inventions under the Patents Acts, 1970, and for the registration of new industrial designs under the Designs Act, 1911, and for other purposes specified in these two Acts, Government of India has established a patent office at Calcutta with a branch office at Bombay.

During 1976-77, 468 applications for patents were filed in the branch office at Bombay.

WEIGHTS AND MEASURES

The unit value of old weights and measures differed from place to place and also sometimes for each commodity at the same place. The English units were also used in certain transactions.

The weights and measures in Bombay were inspected and stamped at Crawford Market by the staff maintained by the Municipality under Section 49 of the Municipal Act. Prior to 1888, this duty was performed by the police.

The *ser* was the standard Unit of weight and measure, but the measure differed according to the commodity weighed. The Bombay *ser* was equal to 4900 grains Troy or 27 *tolas* and 4 grains. The *ser* measure for grain, etc. was 49.14 cubic inches and was equivalent to 1b. and 8 oz. avoirdupois of common rice. Sixty standard *tolas* weight of water

was estimated to give the capacity of a vessel to contain one *ser* measure of milk. In case of oil, the *ser* measure contained only 30 *tolas* weight of water. Besides, English weights such as pounds and ounces were sometimes used by wholesale and retail dealers in case of articles such as ice, flour and meat. The old measures for oil and milk were $30\frac{1}{4}$ and 63 *tolas*, respectively.

Even though the measures of length were the *var* (yard) and the *gaj*, only the former was rapidly becoming the standard unit and was equivalent to 36 inches. The weights used for the wholesale or retail sale of metals, cotton, butter, fuel, spices and other articles were of two types. The large weight measures for the above mentioned articles were : *maund* 40 seers, *khandi* of 800 seers, whereas the small weight measures for the weighing of those articles were *nautak, pavser* and *adhser*. Besides, certain classes of articles were sold by special weight *e.g.*, cotton by bale which was equivalent to 392 lbs; wool by bale equivalent to 336 lbs; wheat by bag equivalent to 2 cwt., and seeds were sold by bags of varying capacity.

The weights used by the goldsmith were *gunj,val, masa*, and *tola*, the *tola* being a trifle heavier than the British Indian rupee. The pearl weights in vogue were the *vassa, rati, val, tank* and *tola*.

The large dry measures were the *payali* equivalent to 4 *sers*, *phara* equivalent to 64 *sers* and *khandi* equivalent to 512 *sers*; of these the latter two were rapidly falling into disuse and it was a practice to allow more than 16 *payalis* to the *phara* according to the kind of grain to be measured. However, there was only one small dry measure and that was *tipri*.

Metric weights and measures : In order to avoid the confusion resulting from the multiplicity of weights and measures and to bring about a uniform system for the whole country, the Government of India enacted the Standards of Weights and Measures Act in 1956. This Act laid down the basic units under the metric system which derive its nomenclature from the primary unit of measurement the metre. The various unit values were set in decimal proportions.

On the lines of the above Act, the then Government of Bombay enacted the Bombay Weights and Measures (Enforcement) Act, 1958, so as to enforce the standard units based on metric system in the State. The enforcement of the system was started in 1956 and was completed in 1966. Accordingly all the trade transactions in the district, wholesale as well as retail, are undertaken in terms of metric units.

TABLE No. 14

REGION-WISE PRINCIPAL ITEMS OF TRAFFIC FROM 1ST APRIL 1980 TO 31ST MARCH 1981

Imports

(Based on audited returns in Metric Tonnes rounded off to hundreds)

Serial No.	Commodities	African Countries	Australia and New Zealand	Canada	Far-Eastern Countries	Japan	Other American Countries	Other Asian Countries
1	2	3	4	5	6	7	8	9
1	Asbestos and Asbestos Material ..	3,900	10,900	25,000	100	....	....	....
2	Building Material : Cement ..	....	....	....	2,54,300	16,100	....	....
3	Carbon black	....	3,800	....	2,200	700	....	....
4	Chemicals: (*i*) Sulphur	....	....	70,100	....	....	....	1,01,100
	(*ii*) Other kinds	1,500	....	8,000	8,800	16,600	200	1,500
5	Copra	4,400	....	....	8,000	....	....	....
6	Drugs and Medicines	100	100	....	1,000	1,400	....	700
7	Dyes and Colours	1,900	300	....	1,500	3,000	....	....
8	Earth & Earthenware	....	....	....	5,300	200	....	....
9	Fertilisers: (*i*) Rock Phosphate ..	....	....	....	....	....	....	....
	(*ii*) Urea	20,000	....	....	....	....	....	58,600
	(*iii*) Other Chemical Fertilisers..	....	....	1,57,100	....	....	....	....

TABLE No. 14—*contd.*

Serial No.	Commodities	Other European Countries	U.K.	U.S.A.	U.S.S.R.	West Germany	Middle East	Total Tonnes
1	2	10	11	12	13	14	15	16
1	Asbestos and Asbestos Material ..	300	200	600	11,900	100	....	53,000
2	Building Material : Cement ..	....	....	....	....	....	....	2,70,400
3	Carbon black	100	....	2,200	....	200	....	9,200
4	Chemicals : (*i*) Sulphur	21,700	....	63,400	....	300	....	2,56,600
	(*ii*) Other kinds	1,42,100	6,300	29,200	5,700	27,700	3,600	2,51,200
5	Copra	....	....	....	....	....	....	12,400
6	Drugs and Medicines	2,900	200	1,700	100	1,200	....	94,000
7	Dyes and Colours	4,600	3,700	2,800	600	3,200	....	21,600
8.	Earth and Earthenware	....	100	11,100	....	200	3,800	20,700
9.	Fertilisers : (*i*) Rock Phosphate ..	10,700	....	....	....	....	3,22,200	3,32, 900
	(*ii*) Urea	1,67,400	....	64,300	8,100	19,700	....	3,38,100
	(*iii*) Other Chemical Fertilisers	80,000	....	1,71,300	10,500	3,500	....	4,22,400

TABLE No. 14—*contd.*

Serial No.	Commodities	African Countries	Australia and New Zealand	Canada	Far-Eastern Countries	Japan	Other American Countries	Other Asian Countries
1	2	3	4	5	6	7	8	9
10	Fibres-Synthetic	....	500	300	7,400	29,800	200	....
11	Foodgrains	1,600	2,000	....	17,800	....	....	....
12	Foodstuffs, N. O S.	....	500	....	400	....	....	....
13	Fruits—Dates	....	....	....	....	....	....	28,600
14	Hair and Wool	100	17,300	....	200	100	....	....
15	Industrial Alcohols and Spirits-non-potable	....	....	....	500	3,200	....	....
16	Instruments etc.	....	....	....	2,400	2,600	....	100
17	Lac, gums and resin	3,000	....	....	1,500	100	....	....
18	Machinery, N.O.S.	100	700	100	400	14,300	....	500
19	Metal and Metal Products—							
	(i) Ingots Aluminium	....	100	2,000	....	....	5,500	11,800
	(ii) Ingots Lead	800	5,300	....	....	....	....	....
	(iii) Ingots Zinc	7,100	7,300	4,000	1,300	....	....	....
	(iv) Iron and steel material	100	56,600	70,200	76,100	215,500	9,100	1,900
	(v) Scrap and dross	1,800	5,300	1,400	18,400	100	....	31,700
	(vi) Tin plates	....	500	100	300	13,900	....	....
	(vii) Other Metal and Metal Products ..	31,800	9,000	9,200	33,200	46,000	11,400	700
20	Motor Vehicles	....	....	....	100	2,700	100	100
21	Moulding Powder	....	200	1,600	1,800	5,200	....	....

TABLE No. 14—*contd.*

Serial No.	Commodities	Other European Countries	U.K.	U.S.A.	U.S.S.R.	West Germany	Middle East	Total Tonnes
1	2	10	11	12	13	14	15	16
10	Fibres-Synthetic	6,200	7,700	6,000	100	800	....	59,000
11	Foodgrains	....	....	5,300	....	....	13 600	40, 300
12	Foodstuffs, N.O.S.	9,000	400	25,500	....	4,100	....	39,900
13	Fruits—Dates	....	....	....	....	....	....	28,600
14	Hair and Wool	500	1,600	100	....	....	....	19,900
15	Industrial Alcohols and Spirits—non-potable	1,400	100	2,800	....	4,900	....	12,900
16	Instruments etc.	3,300	1,300	1,500	200	1,600	....	13,000
17	Lac, gums and resin	100	100	100	....	100	....	5,000
18	Machinery, N.O.S.	18,000	8,400	5,100	1,100	6,900	....	55,600
19	Metal and Metal Products—							
	(*i*) Ingots Aluminium	2,500	....	18,400	....	....	4,300	44,600
	(*ii*) Ingots Lead	100	200	800	....	....	....	7,200
	(*iii*) Ingots Zinc	200	100	....	3,100	....	100	23,200
	(*iv*) Iron and Steel material	3,18,600	62,300	64,000	10,500	2,78,600	500	11,64,000
	(*v*) Scrap and dross	29,100	37,600	71,500	....	1,200	100	1,98,200
	(*vi*) Tin plates	36,500	17,900	10,200	....	2,200	100	81,700
	(*vii*) Other Metal and Metal Products..	62,300	12,400	26,500	3,200	31,600	100	2,77,400
20	Motor Vehicles	2,500	5,400	3,200	1,500	2,000	....	17,600
21	Moulding Powder	1,100	300	7,800	....	400	....	18,400

TABLE No. 14—*contd.*

Serial No.	Commodities	African Countries	Australia and New Zealand	Canada	Far-Eastern Countries	Japan	Other American Countries	Other Asian Countries
1	2	3	4	5	6	7	8	9
22	Oilseeds	....	....	1,300	....	....	....	....
23	Oils and Fats, N.O.S.	1,000	....	65,400	272,000	2,300	133,500	1,100
24	Paper and Paper Products	100	2,300	51,800	3,700	5,700	6,600	2,000
25	Plastics and Plastic Manufactures ..	1,000	100	1,800	31,000	15,300	100	1,400
26	Railway Wagons, Carriages and Locomotives, parts of.	....	400	....	200	2,100	1,200	....
27	Rubber-Raw	....	....	800	300	1,600	....	....
28	Salt	....	....	....	....	....	....	....
29	Sugar	....	....	....	....	....	50,900	....
30	Tallow	....	19,800	....	....	....	....	....
31	Wood pulp	....	....	4,600	....	....	....	....
32	Wood and Timber—.	....	....	....	....	....	....	....
	(*i*) Timber, other sorts including poles, etc.	....	....	....	....	....	....	....
	(*ii*) Wooden Products, N.O.S. ..	....	....	....	600	....	....	....
33	Miscellaneous	27,400	2,900	2,100	1,02,500	43,400	22,300	47,44,400
	Grand Total	107,700	145,900	476,900	853,300	441,900	241,100	4,986,200

TABLE No. 14—*contd.*

Serial No.	Commodities	Other European Countries	U.K.	U.S.A.	U.S.S.R.	West Germany	Middle East	Total tonnes
1	2	10	11	12	13	14	15	16
22	Oilseeds	....	....	....	....	....	....	1,300
23	Oils and Fats, N.O.S.	41,000	100	144,600	....	1,200	2,100	664,300
24	Paper and Paper Products	94,800	1,600	2,000	31,300	5,800	....	207,700
25	Plastics and Plastic Manufactures ..	29,100	3,600	19,800	200	7,300	....	110,700
26	Railway Wagons, Carriages and Locomotives, parts of.	3,200	600	....	....	2,700	....	10,400
27	Rubber-Raw	2,600	100	1,600	....	600	....	76,00
28	Salt	....	....	....	....	....	....	....
29	Sugar	....	....	....	....	....	....	50,900
30	Tallow	....	....	7,400	....	....	....	27,200
31	Wood pulp	1,500	....	11,600	....	....	....	17,700
32	Wood and Timber—							
	(i) Timber, other sorts including poles,etc.	100	....	....	....	....	....	100
	(*ii*) Wooden Products, N.O.S. ..	2,800	100	100	....	200	....	3,800
33	Miscellaneous	258,700	37,000	76,900	244,300	11,100	129,800	5,702,800
	Grand Total ..	1,355,000	209,400	859,400	332,400	419,400	480,300	1,09,08,900

Note.—Figures of imports from Sri Lanka and Pakistan and the group of miscellaneous countries are not included.
Source.—Bombay Port Trust, Annual Administration Report, 1980–81.

TABLE No. 15

REGION-WISE PRINCIPAL ITEMS OF TRAFFIC, (DOCKS AND BUNDERS COMBINED, EXCLUDING COASTAL AND OVERSIDE) FROM 1ST APRIL 1980 TO 31ST MARCH, 1981

Exports

(Based on audited returns in Metric Tonnes rounded off to hundreds)

Serial No.	Commodities	African Countries	Australia and New Zealand	Canada	Far Eastern Countries	Japan	Other American Countries	Other Asian Countries	Other European Countries
1	2	3	4	5	6	7	8	9	10
1	Antiques, Artware and Curios.	500	900	500	500	1,300	200	5,600	5,700
2	Animals, birds etc.—All other animals not in cages.	....	....	....	....	....	....	84,500	....
3	Asbestos and Asbestos Material.	200	....	....	100	....	....	10,000	....
4	Asphalt, Bitumen, Dammer, Pitch etc.	....	....	....	....	....	....	....	....
5	Beverages and drinks non-alcoholic, N.O. S.	1,000	....	....	....	....	....	3,700	....
6	Bicycle and Bicycle Parts ..	15,700	....	....	6,100	....	500	10,200	2,200
7	Building Material ..	1,300	3,400	....	200	2,700	....	50,500	6,800
8	Chemicals	3,900	1,500	200	6,800	1,400	....	23,900	1,200
9	Coffee beans	....	100	....	....	....	....	3,900	400

TABLE No. 15—*contd.*

Serial No.	Commodities	U.K.	U.S.A.	U.S.S.R.	West Germany	Middle East	Sri Lanka	Pakistan	Bangla Desh	Total Tonnes
1	2	11	12	13	14	15	16	17	18	19
1	Antiques, Artware and Curios.	1,600	9,100	2,800	3,500	500	....	....	....	32,700
2	Animals, birds etc.—All other animals not in cages.	....	....	....	....	....	....	....	....	84,500
3	Asbestos and Asbestos Material.	....	....	100	200	100	....	....	....	10,700
4	Asphalt, Bitumen, Dammer, Pitch, etc.	....	....	....	....	....	....	....	....	....
5	Beverages and drinks non-alcoholic, N.O.S.	....	....	2,700	....	....	....	....	....	7,400
6	Bicycle and Bicycle Parts ..	200	100	100	1,300	2,600	3,300	....	....	42,300
7	Building Material ..	300	200	300	200	100	100	....	....	66,100
8	Chemicals	900	2,500	400	200	2,800	2,000	....	200	47,900
9	Coffee beans	....	200	2,000	....	300	....	....	....	6,900

TABLE No. 15—*contd.*

Serial No.	Commodities	African Countries	Australia and New Zealand	Canada	Far Eastern Countries	Japan	Other American Countries	Other Asian Countries	Other European Countries
1	2	3	4	5	6	7	8	9	10
10	Cotton—(*i*) Raw ..	200	....	....	51,200	12,000	....	....	8,800
	(*ii*) Twist, Waste ..	....	....	....	2,100	1,700	....	100	600
11	Drugs and Medicines ..	2,800	200	200	1,800	500	....	3,100	16,300
12	Dyes and Colours ..	1,000	200	....	2,600	300	....	5,900	1,900
13	Earth and Earthen ware ..	3,600	400	....	1,200	100	....	4,900	2,400
14	Fertilisers—								
	(*i*) Bone and Bonemeal ..	....	....	....	100	13,000	....	....	9,100
	(*ii*) Others ..	....	....	....	200	100	....	....	....
15	Fish and Other Marine Food Products—								
	Fish—Fresh	....	....	....	300	3,700	....	3,500	2,100
16	Fodder including oil cakes ..	5,400	....	....	57,400	8,700	....	29,000	1,32,100
17	Foodgrains—								
	(*i*) Rice	12,900	....	700	14,200	....	....	63,600	7,200
	(*ii*) Wheat	....	....	....	14,400	....	....	....	....
	(*iii*) Others	....	....	....	....	....	....	5,500	....
18	Foodstuffs, N.O.S. ..	5,200	900	1 000	1,400	1,400	....	66,600	11,600
19	Fruits and Vegetables—								
	(*i*) Fruits Dried and Fresh	....	500	....	....	....	....	6,300	900
	(*ii*) Vegetables Dried and Fresh.	1,500	....	....	18,300	100	....	78,500	....
20	Glass and Glass Products ..	1,900	100	....	4,600	....	....	9,900	900
21	Hosiery, Haberdashery, Millinery, etc.	1,900	2,000	600	500	600	100	6,400	9,500

TABLE No. 15—*contd.*

Serial No.	Commodities	U.K.	U.S.A.	U.S.S.R.	West Germany	Middle East	Sri Lanka	Pakistan	Bangla Desh	Total Tonnes
1	2	11	12	13	14	15	16	17	18	19
10	Cotton—(*i*) Raw ..	100	....	9,100	2,200	100	3,200	....	....	86,900
	(*ii*) Twist, Waste ..	300	100	....	100	....	....	....	....	5,000
11	Drugs and Medicines ..	1,700	6,500	15,700	1,300	100	1,300	100	....	51,600
12	Dyes and Colours ..	600	1,100	1,600	300	1,800	100	100	400	17,900
13	Earth and Earthenware ..	400	100	....	800	1,100	400	....	100	15,500
14	Fertilisers—	2,100	4,600	....	100	....	....	....	....	29,000
	(*i*) Bone and Bonemeal ..									
	(*ii*) Others	....	....	....	....	....	....	....	....	300
15	Fish and Other Marine Food Products—	1,400	600	....	100	....	....	....	....	11,700
	Fish-Fresh									
16	Fodder including oil cakes ..	500	....	28,200	15,500	11,200	900	....	....	2,88,900
17	Foodgrains—									
	(*i*) Rice	6,600	500	35,500	....	....	....	....	....	1,41,200
	(*ii*) Wheat	....	....	....	....	....	....	....	....	14,400
	(*iii*) Others	....	....	....	....	....	....	....	....	5,500
18	Foodstuffs, N.O.S. ..	5,800	17,200	300	4,700	3,000	1,400	....	....	1,20,500
19	Fruits and Vegetables :									
	(*i*) Fruits, Dried and Fresh	1,500	....	300	100	1,200	....	....	....	10,800
	(*ii*) Vegetables Dried and Fresh.	....	....	40,900	....	....	9,800	....	....	1,49,100
20	Glass and Glass Products ..	100	300	500	300	200	300	....	300	19,400
21	Hosiery, Haberdashery, Millinery, etc.	3,200	5,200	13,100	5,800	200	100	....	100	49,300

TABLE No. 15—*contd.*

Serial No.	Commodities	African Countries	Australia and New Zealand	Canada	Far Eastern Countries	Japan	Other American Countries	Other Asian Countries	Other European Countries
1	2	3	4	5	6	7	8	9	10
22	Instruments, etc. ..	3,400	1,000	100	2,100	....	....	7,100	700
23	Lac, Gums and Resins ..	500	....	....	200	300	....	300	1,700
24	Leather and Leather Manufactures.	200	1,000	100	....	....	....	3,100	2,000
25	Machinery, N. O. S. ..	13,300	1,000	600	5,700	100	100	21,500	800
26	Metal and Metal Products—								
	(*i*) Hardware	1,300	100	200	200	....	....	3,100	200
	(*ii*) Iron and Steel Material	4,200	....	....	500	100	....	53,800	400
27	Scrap and Dross ..	....	....	....	....	....	....	100	100
28	Wires and Cables ..	300	....	....	1,600	200	....	3,200	1,800
29	Other Metal and Metal Products.	13,800	2,300	1,500	18,300	400	100	71,400	7,800
30	Molasses	....	....	....	....	....	....	....	33,400
31	Motor Vehicles—								
	(*i*) Weighing 1½ tonnes or more.	5,700	....	....	200	....	100	2,100	100
	(*ii*) Parts of M. V. ..	4,000	300	200	4,600	....	....	9,300	1,000
32	Oil-seeds	....	100	....	200	500	....	800	2,300
33	Oils and Fats. N. O. S. ..	100	500	1,100	200	600	....	400	3,000
34	Paints and Painters' Material	1,400	200	....	1,600	200	....	1,400	300
35	Paper and Paper Products ..	700	100	100	200	....	....	1,600	....
36	Plastic and Plastic Manufactures.	1,400	....	....	200	....	....	4,000	100
37	Rubber Manufactures ..	400	300	200	200	....	....	1,900	700

TABLE No. 15—*contd.*

Serial No.	Commodities	U.K.	U.S.A.	U.S.S.R.	West Germany	Middle East	Sri Lanka	Pakistan	Bangla Desh	Total tonnes
1	2	11	12	13	14	15	16	17	18	19
22	Instruments, etc. ..	200	1,900	6,700	200	2,200	1,700	....	200	27,500
23	Lac, Gums and Resins ..	1,000	3,100	....	400	100	100	....	....	7,700
24	Leather and leather Manufactures.	700	300	1,600	200	....	....	....	....	9,200
25	Machinery, N.O.S.	1,300	1,500	2,300	500	12,700	2,200	....	800	64,500
26	Metal and Metal Products—									
	(*i*) Hardware	500	3,500	....	500	900	400	....	....	10,900
	(*ii*) Iron and Steel Material	100	....	800	100	1,700	600	100	3,800	66,300
27	Scrap and Dross ..	200	....	....	....	....	....	....	....	400
28	Wires and Cables ..	....	200	10,100	100	900	300	....	300	19,300
29	Other Metal and Metal Products.	4,200	15,600	2,700	2,700	12,800	1,900	....	200	1,55,700
30	Molasses	....	....	....	....	....	....	....	....	33,400
31	Motor Vehicles—									
	(*i*) Weighing 1½ tonnes or more.	....	....	....	....	800	1,800	....	....	10,800
	(*ii*) Parts of M.V. ..	600	1,500	400	400	2,300	1,000	....	100	25,700
32	Oil-seeds	100	4,400	....	700	....	....	....	....	9,100
33	Oil and Fats, N.O.S. ..	1,500	100	....	300	100	....	....	....	7,800
34	Paints and Painters' Material	100	....	5,700	....	....	....	....	....	10,900
35	Paper and Paper Products ..	100	100	....	....	....	100	....	....	3,000
36	Plastic and Plastic Manufactures.	100	....	500	....	....	100	....	....	6,400
37	Rubber Manufactures ..	600	500	600	....	200	....	....	....	5,600

TABLE No. 15—*contd.*

Serial No.	Commodities	African Countries	Aurstralia and New Zealand	Canada	Far Eastern Countries	Japan	Other American Countries	Other Asian Countries	Other European Countries
1	2	3	4	5	6	7	8	9	10
38	Spices including pepper ..	2,000	300	400	5,000	2,600	200	16,600	1,600
39	Sugar	....	....	....	....	....	....	....	....
40	Tea	200	....	....	....	....	....	21,600	1,500
41	Textiles—Cotton ..	1,300	3,000	500	500	800	....	3,000	12,000
42	Tobacco-Raw, Country ..	1,000	....	....	....	....	....	7,800	1,400
43	Tobacco-Manufactures ..	....	....	....	....	....	....	10,100	....
44	Toilet preparations and perfumes	400	300	....	200	....	....	2,400	200
45	Wood and Timber—								
	(*i*) Timber, other sorts including poles etc.	....	....	....	....	....	....	400	100
	(*ii*) Wooden products, N.O.S.	500	100	....	400	200	....	7,400	600
46	Miscellaneous ..	6,100	3,100	3,600	7,100	3,000	400	36,800	9,500
	Grand Total ..	1,21,200	23,900	11,800	2,33,200	56,600	1,700	7,66,800	3,03,000

Note.—(i) N.O.S. = Not otherwise specified; (ii) shown separately.

Figures of exports to Burma and group of Miscellaneous countries are not included.

Source.—Bombay Port Trust, Annual Administration Report, 1980–81.

TABLE No. 15—*concld.*

Serial No.	Commodities	U.K.	U.S.A.	U.S.S.R.	West Germany	Middle East	Sri Lanka	Pakistan	Bangla Desh	Total Tonnes
1	2	11	12	13	14	15	16	17	18	19
38	Spices including pepper ..	1,600	5,800	700	800	1,700	....	....	100	39,400
39	Sugar	9,300	....	....	....	11,700	4,200	....	....	25,200
40	Tea	....	....	....	....	800	....	900	....	25,000
41	Textiles—Cotton ..	7,000	7,000	14,800	3,700	200	200	....	....	54,000
42	Tobacco-Raw, Country ..	1,900	....	....	....	400	....	....	....	12,500
43	Tobacco-Manufactures ..	....	....	1,900	....	....	....	....	....	12,000
44	Toilet preparations and perfumes.	200	100	10,600	....	100	....	....	....	14,500
45	Wood and Timber—									
	(*i*) Timber, other sorts including poles etc	....	....	....	....	....	....	....	....	500
	(*ii*) Wooden products, N.O.S.	200	300	500	100	100	100	....	....	10,500
46	Miscellaneous	3,900	2,200	26,600	21,100	1,500	3,500	600	1,100	1,30,100
	Grand Total ..	62,700	96,400	2,40,100	68,500	76,500	41,100	1,800	7,700	21,13,000

CHAPTER 7—COMMUNICATIONS

INTRODUCTION

BOMBAY'S LOCATION AS A CAPITAL OF MAHARASHTRA, the finest major port on the western coast of India, and as the international business centre, has indeed given it a distinct character; and acted as a catalytic agent for a quick development of various modes of transport and communications. Lying on the way to the heartland of the western coast of India, it has continuous trend of prosperity of industries and trade, establishment of office premises as also the continuous flow of migrants from all parts of India. It offers them a permanent place of residence and provides a vital link of communication between Bombay and other parts of India. From the transport standpoint, Bombay constitutes a centre of international importance, and is also a metropolitan regional centre for a considerable portion of Western India and an urbanised area requiring movement of both persons and goods.

The Bombay Harbour, described by Antonio Bocarro for the first time in 1634, provided the nucleus for the growth of the city. In Bombay the most important factor which contributed to the initial concentration of the cotton textile industry was the availability of excellent transport facilities both in regard to raw materials and consumers markets. Other industries such as engineering, chemicals, etc. in Bombay developed in the subsequent period. The industrial development of Bombay would not have taken place if there were no transport facilities. Millions of persons are engaged in these industries and a large capital has been invested. Transport has, thus, contributed to Bombay's development.

RAILWAYS

CENTRAL RAILWAY

Before regrouping of railways, this railway line was popularly known as the Great Indian Peninsula Railway. The following account traces its history in brief:

The general scheme for railway construction in India was formulated in 1843 and plans were prepared for a line from Kurla to Thane, to be called "The Bombay Great Eastern Railway". The permanent way was proposed to consist of wrought iron rails. Passengers, cattle, sheep, etc. were proposed to be carried by two daily trains in each direction, all goods being conveyed by horse-traction. Eventually horse agency was rejected in favour of locomotives for all trains, which were not to exceed

a speed of ten miles an hour. This scheme was investigated by a special committee and was finally approved by the citizens of Bombay. At a public meeting in the Town Hall (now housing the Central Library) on 19th April 1845, an "Inland Railway Association" was formed for the purpose of promoting enquiries into the applicability of railway communication to this side of India. Meanwhile, the Great Indian Peninsula Railway Company was formed for the same purpose in London. In response to its suggestions an influential committee was also formed in Bombay in July 1845 to work in conjunction with the London Committee, and in the August of the same year an officer was despatched to Bombay to make enquiries on the spot. After the countryside upto the *ghats* as also the *ghat* areas had been thoroughly surveyed by him, the Great Indian Peninsula Railway Company was incorporated by an Act of 1st August 1849. The East India Company entered into a contract with the Great Indian Peninsula Railway Company, London for laying down railway lines in India in 1851. Accordingly the first railway line in India was opened for traffic from Bombay to Thane on 16th April 1853. The opening of this railway line was one of the most important landmarks in the economic development not only of the Bombay-Thane region but also of the outlying areas and hinterlands. An account of the opening ceremony is given below*:

"It was a warm sticky, sultry Saturday (16th April 1853) afternoon with the sun shining rather unkindly. That time there steamed from a little wooden station (that was Bori Bunder, 122 years ago), a little train that heralded the introduction of Railway to India and the East. It was a different Bombay which witnessed momentous scene—a Bombay bereft of its architectural beauties and its industrial horrors, of its hurtling trains and roaring buses—a Bombay which one would have to see to believe.

"The railway between Bombay and Thana was opened with all due pomp and ceremony.....

"Soon after 2 O'clock the awning and shed began to be filled with all the beauty, rank and fashion of Bombay. A large number of honourable persons amounting in all to nearby five hundred individuals, helped by their presence, to give eclat and honour to the occasion.

"The day was declared a public holiday. A space around the railway shed was thickly thronged with people of all classes, creeds and colours. Bands played, guns fired from the fort's rampart, when, at the signalled moment, the train with 400 guests comfortably started was set in motion and went majestically along its course to the astonishment and wonder of the assembled thousands.

* "When First Train chalked out"—an article by K. R. Vaidyanathan in the *Economic Times* of 13th April 1975.

"The whole line densely crowded with spectators from the terminus to the flats beyond Byculla, tier after tier of the houses in the native town were filled as thickly as they could be by men, women and children. The scene altogether was one of the great beauty and excitement.

"On crossing the flats and getting into the country between Mahim and Sion Causeway, spectators from the neighbouring villages were still found lining both sides of the rail, thus it continued more or less all the way to Thana, the approaches to which were also densely crowded.

"Including a short halt beyond Sion, for the purpose of taking in water, the trip to Thana was accomplished in 57 minutes.

"At Thana in a suite of Durbar Tent covers were laid for 400 peoples, where some eminent persons delivered speeches."

An interesting account of railways during the 19th century upto the first decade of this century is reproduced below from the *Gazetteer of Bombay City and Island* published in 1909.[1]

"On April the 16th, 1853, the first twenty-one miles of rail from Bombay to Thana were opened for traffic. The day was kept as a public holiday, and the Commander-in-Chief placed the garrison band at the disposal of the Company and arranged for the firing of salutes. This year also witnessed the registration of a second contract providing *inter alia* for the construction of a line 'from Kalyan to Shawpoor' (now Asangaon, 54 miles from Bombay). On the 1st May 1854, the extension to Kalyan was opened; and towards the end of the year Mr. Berkley submitted a report in favour of the Thal *Ghat* incline for a trunk line towards Khandesh, and added in the following year a second report which advocated the construction of a locomotive incline over the Bhor *Ghat*. New year's day 1861, witnessed the opening of the line to Kussarah at the foot of the Thal *Ghat*, the three termini at Nagpur, Jubbulpore and Raichur being respectively reached on the 20th February 1867, the 8th March 1870 and the 1st May 1871."

"The Thal *Ghat* incline was opened in January, 1865. The subjoined table shows the magnitude of the work accomplished on the two inclines:—

	Thal Ghat	Bhor Ghat
Total Length of Incline	9 miles, 26 chains	15 miles, 69 chains
Total Rise	972 feet	1831 feet
Number of Tunnels	13	25
Longest Tunnel	490 yards	437 yards
Number of Viaducts	6	8
Largest Viaduct	250 yards long 200 ft. high	168 yards long 139 ft. high
Total Cost	Rs. 55,12,217	Rs. 1,05,00,297

[1] For detailed history of Railways *seeGazetteer of Bombay City and Island*, Vol. I, 1909, pp. 342-58.

" The incalculable benefits conferred upon the country by the two main lines of the Great Indian Peninsula Railway were so quickly manifested that, even before those lines were completed, fresh railways were projected which have gradually been linked up to the Great Indian Peninsula system since 1871."

" On the 1st January 1885, an agreement was entered into between the Bombay, Baroda and Central India Railway Company and the Great Indian Peninsula Railway Company for the interchange of coaching and goods stock. Each line also acquired power to run over the track of the other *via* Dadar Junction, so that the former company could send its goods trains direct to Carnac Bandar and the latter obtained the same privilege in respect of Colaba. Further it was mutually agreed that, if at any future date it appeared expedient in the interest of the public service to do so, a local passenger train service should be established between Bandra on the Bombay, Baroda and Central India Railway and the Victoria Terminus *via* Dadar Junction."

" On the 1st July 1900, the Secretary of State, in accordance with the terms of the contract of 1848, exercised his right of purchase; and the railway passed from the hands of the company into those of Government, the purchase-price being £ 34,859,217 payable by means of annuities extending over a period of 48 years and 48 days. Further by virtue of indentures of the 21st December 1900 between the Secretary of State and the Great Indian Peninsula and Indian Midland Railway Companies, the Great Indian Peninsula Railway Company undertook to manage, maintain and work the two systems as one, thereby adding to the 1,562 miles of their own line a further mileage of 1,239."

" When the construction of the line was commenced the Chief Engineer's office was situated in the Bombay Green (now Elphinstone Circle), being subsequently transferred to Mount Castle in Victoria Road, Mazagaon. About 1863, it was located in a lane leading off Grant Road, and was again moved in 1866 to Byculla Villa, now the G.I.P. Railway Infirmary. During this period the Agent's and Accountant's offices were housed in Shankarsett's bungalow, opposite the Synagogue at Byculla. In 1869, the Chief Engineer's office was moved to the building in Church Gate street, known as the old B.B. & C.I. Railway offices, while the Agent's and Accountant's offices were accommodated for a short time in the present Temple Bar Hotel, facing the King's Equestrian Statue. In 1870, all three offices were removed to Messrs. Remington & Co.'s building in Elphinstone Circle. The Traffic offices had been located from the commencement in the old station buildings at the Bori Bandar; while the headquarters of the Locomotive department were at Byculla ..... being eventually removed to Parel in June, 1882. Finally in 1886, all the offices, except those of the Locomotive department, were transferred to

the splendid building at Bori Bandar known as the Victoria Terminus.[1] The Company's workshops at Parel were opened in 1879."

"The following table shows the earnings of the Company at quinquennial intervals since 1854:—

(In thousands; 000s omitted)

Year	Total receipts	Net earnings	Year	Total receipts	Net earnings
	Rs.	Rs.		Rs.	Rs.
1854 .	2,28	1,03	1884	3,36,56	1,60,42
1859 ..	18,27	8,92	1889	3,70,69	1,80,09
1864 ..	71,60	19,44	1894	3,62,74	1,63,83
1869 ..	1,58,01	52,97	1890	3,58,09	1,59,44
1874 ..	2,01,66	82,34	1904	4,82,41	2,41,80
1879 ..	2,52,48	1,01,90	1908	4,68,33	1,76,86

"The total receipts and net earnings of the company in 1908 amounted to Rs. 4,68,32,971 and Rs. 1,76,86,213 respectively. The most prosperous year was 1891, when the total receipts amounted to 452 lakhs, and the net earnings to about 234 lakhs. In the same year the highest tonnage of up traffic only, dealt with in a single day at Bombay, was 11,260 tons; while the daily average for the first six months of the year was 5,638 tons."

"In 1870, through communication was established with Calcutta, and in 1871 with Madras, which led to a large increase in both passenger and goods traffic. From 1880 onwards the goods traffic has steadily expanded, owing in large measure to the rapid growth of the European factory system in Bombay and the consequently increased traffic in cotton. The quantity of cotton imported into Bombay by the railway has been more than trebled since 1880, the quantity carried in 1905 amounting to 339,047 tons as compared with 89,115 tons in 1880. The general increase in the goods traffic is also largely attributable to larger export from Bombay of grain and oilseeds, while the railway has carried out of Bombay to other parts of India an ever-increasing quantity of piece-goods, twist, yarn and European machinery. A great reduction in the rates of fares since 1871 has been the chief cause of the increased passenger traffic; for whereas in 1871 the rates for 1st class, 2nd class, 3rd class, by mail-trains, and 3rd class by ordinary trains, were respectively 1½ annas, 9 pies, 4 pies, and 2½ pies per mile, in 1908 they stood respectively at one anna, 6 pies, 3 pies and 2½ pies per mile for the first 50 miles and 2 pies per mile over 50 miles. For local trains the 3rd class fare is calculated at 2 pies per mile."

[1] For history and details of Victoria Terminus, *see* Chapter 19 on Places in Vol. III.

The subjoined table gives the average number of passengers conveyed and the average tonnage of goods carried to and from Bombay City from 1870 to 1908:—

Number	1870	1880	1890	1900	1908
Of passengers booked to and from stations in Bombay City.	1,507,421	2,250,822	7,798,154	14,363,703	15,479,854
Of passengers booked to stations in Bombay City.	721,144	1,108,690	3,874,496	7,109,945	7,647,426
Of Tons of goods booked to and from stations in Bombay City.	339,771	693,373	1,261,124	1,277,087	1,825,007
Of Tons of goods booked to stations in Bombay City.	212,905	307,013	938,455	716,610	1,247,111

The following table shows the number of passengers daily conveyed between Victoria Terminus and Dadar, Sion, Thana and Kalyan since 1870:—

Between		Number of Daily Passengers				
Station	Station	1870	1880	1890	1900	1908
Victoria Terminus	Dadar ..	37	32	672	1,391	1,142
	Sion ..	..	25	221	477	441
	Thana ..	160	223	966	1,416	1,376
	Kalyan ..	71	88	582	919	1,051
	Total ..	268	368	2,441	4,203	4,010

The harbour branch of this railway was opened for traffic in 1915. There is an important viaduct at Sandhurst Road Station for Harbour line which is flying over the main lines. It is located between kms 1.18 and 2.12. It has 39 spans of various lengths.

An increase of passenger traffic was also likewise noticeable between the city and its suburbs. Excluding the terminus there are 28 stations within the limits of Greater Bombay, *viz.*, (1) Masjid, (2) Sandhurst Road, (3) Byculla, (4) Chinchpokli, (5) Currey Road, (6) Parel, (7) Dadar Junction, (8) Matunga, (9) Sion, (10) Kurla, (11) Vidyavihar, (12) Ghatkopar, (13) Vikhroli, (14) Kanjur Marg, (15) Bhandup and (16) Mulund on the Bombay-Kalyan section; and (1) Dockyard Road, (2) Reay Road, (3) Cotton Green, (4) Sewri, (5) Vadala Road, (6) King's Circle, (7) Mahim

Junction, (8) Guru Teg Bahadur Nagar (former Koliwada), (9) Chunabhatti, (10) Chembur, (11) Govandi and (12) Mankhurd on the harbour railway. Between all these and the Western Railway's (Bombay-Bandra railway line) stations a very large number of commuters travel daily; and perhaps the most noticeable increase is between the terminus and suburban places outside the Bombay city and also places outside the Greater Bombay area. The difficulties in obtaining house accommodation within the city has of late years become so acute that many persons have built, and are still building houses in the northern and eastern portions of the city or are seeking accommodations at places as far distant as Vasai, Virar, Kalyan, Karjat, Kasara, etc. The local train service was introduced in 1870. To meet the above mentioned outward movement, the railway has arranged an excellent local train service.

The suburban services of the Central Railway in Bombay area are run on three independent sets of double line. The main suburban section extends from Bombay to Kalyan. This quadruple route is provided with automatic signalling. There is another set of suburban line *viz.*, Harbour branch line. It originates at Bombay V.T. and serves the Dock area in the eastern part of the city. It bifurcates near Vadala with one branch running towards Mankhurd and another to Bandra connecting Western Railway. The daily number of local trains was only 13 in 1870. This increased to 904 in 1984. The railway line is quadruple upto Kalyan and serves the needs of heavy traffic of local trains and through trains as well as goods trains. The entire length of railway on this line is electrified and all the trains are operated by electric locomotives while local trains are operated by electric motor coaches.[1] Besides the local trains from Bombay to suburban termini, a number of mail, express and passenger trains are run on this route daily. At present (November 1984) they are : (1) Bombay-Howrah Gitanjali Express, (2) Dadar-Varanasi Express, (3) Bombay-Gorakhpur Express, (4) Vidarbha Express, (5) Punjab Mail, (6) Calcutta Mail *via* Nagpur, (7) Calcutta Mail *via* Allahabad, (8) Bombay-Howrah Janata Express (twice in a week); Bhagalpur Janata Express (four times in a week) or Muzaffarpur Janata Express (once in a week), (9) Howrah Express *via* Nagpur, (10) Amritsar Express, (11) Panchavati Express, (12) Mahanagari Express and (13) Bhusawal Passengers (two in number) towards Bhusawal; and (1) Deccan Express, (2) Udyan Express, (3) Koyana Express, (4) Hyderabad Express, (5) Dadar-Madras Express, (6) Sinhagad Express[2], (7) Deccan Queen Express, (8) Sahyadri Express, (9) Madras

[1] Details of suburban trains are given in the Addenda to this Chapter.

[2] The Sinhagad double decker express was introduced on 12th April 1978 with an intention of providing accommodation to more travellers between Bombay and Pune. It was introduced instead of the Bombay-Pune Janata Express.

Mail, (10) Siddheshwar Express, (11) Trivendrum Jayanti Janata Express, (12) Mahalaxmi Express, (13) Minar Express, (14) Madras Janata Express, (15) Bombay-Daund-Manmad Passenger and (16) Pune Passenger towards Pune.

Out of these above mentioned 30 pairs long distance passenger trains plying on this division, 25 pairs are dealt with at Bombay V.T., and remaining pairs are dealt with at Dadar. To meet the increasing traffic on this division, various efforts are made to increase the passenger accommodation by running additional trains, attaching additional coaches to the trains by dieselisation of trains, and remodelling of V.T. yard and Mazgaon yards to deal with longer trains. These measures have helped in increasing the train services thereby easing the overcrowding on the long distance trains to a considerable extent. During summer holidays special arrangements are made at Bombay V.T. for booking of passengers and by running Holiday Specials.

Table No. 1 shows the statistics of daily passenger traffic of the local suburban trains on Central Railway in Greater Bombay.

TABLE No. 1

DAILY PASSENGER TRAFFIC OF SUBURBAN TRAINS ON CENTRAL RAILWAY IN GREATER BOMBAY (MARCH 1975)

Station	Number of outgoing passengers			Number of incoming passengers			Grand total of outgoing and incoming passengers handled
	To C.R. stations	To W.R. stations	Total	From C.R. stations	From W.R. stations	Total	
1	2	3	4	5	6	7	8
1. Bombay V. T. ..	2,94,812	42,305	3,37,117	3,11,668	42,941	3,54,609	6,91,726
2. Masjid ..	40,765	3,455	44,240	36,540	3,147	39,687	83,927
3. Sandhurst Road	28,852	3,006	31,858	23,150	3,113	26,263	58,121
4. Byculla ..	74,936	6,881	81,817	76,486	6,785	83,271	1,65,088
5. Chinchpokli ..	21,914	1,594	23,508	22,214	1,405	23,619	47,127
6. Currey Road ..	20,663	129	20,792	17,106	117	17,223	38,015
7. Parel ..	30,323	92	30,415	30,828	97	30,925	61,340
8. Dadar ..	73,838	2,974	76,812	72,073	3,333	75,406	1,52,218

C.R. = Central Railway.
W.R. = Western Railway.

TABLE No. 1—*contd.*

Station	Number of outgoing passengers			Number of incoming passengers			Grand total of outgoing and incoming passengers handled
	To C.R. stations	To W.R. stations	Total	From C.R. stations	From W.R. stations	Total	
1	2	3	4	5	6	7	8
9. Matunga ..	21,600	2,160	23,760	21,217	2,025	23,243	47,003
10. Sion ..	36,159	4,148	40,307	34,186	4,972	39,158	79,465
11. Kurla ..	80,083	5,893	85,970	76,394	6,197	82,591	1,68,567
12. Vidyavihar ..	9,691	759	10,450	10,796	730	11,526	21,976
13. Ghatkopar ..	96,802	7,337	1,04,139	98,456	7,002	1,05,458	2,09,597
14. Vikhroli ..	46,252	4,386	50,638	45,707	4,251	49,958	1,00,596
15. Kanjur Marg ..	26,127	2,750	28,877	27,330	2,689	30,019	53,896
16. Bhandup ..	45,806	5,924	51,732	50,618	5,879	56,497	1,08,229
17. Mulund ..	52,891	2,446	55,337	52,351	2,088	54,439	1,09,776
18. Dockyard Road ..	11,557	2,590	14,147	9,784	2,223	12,007	26,154
19. Reay Road ..	16,131	2,554	18,695	15,117	2,677	17,794	36,479
20. Cotton Green ..	19,966	2,584	22,490	19,866	2,399	22,265	44,755
21. Sewri ..	25,264	3,233	28,497	24,927	3,471	28,398	56,895
22. Vadala Road ..	33,407	3,664	37,071	36,090	3,864	39,954	77,025
23. King's Circle ..	14,199	5,827	20,026	14,491	5,418	19,909	39,035
24. Mahim ..	11,281	....	11,261	11,095	....	11,095	22,376
25. Bandra ..	23,545	....	23,545	23,232	....	23,232	46,777
26. Guru Teg Bahadur Nagar.	19,401	65	19,466	18,069	57	18,126	37,592
27. Chunabhatti ..	7,043	72	7,115	6,094	71	6,785	13,880
28. Chembur ..	41,401	3,011	44,412	41,634	2,883	44,517	88,929
29. Govandi ..	27,724	2,082	29,806	25,366	1,949	27,215	57,121
30. Mankhurd ..	13,486	692	14,178	14,047	889	14,936	29,114

Table No. 2 shows the statistics of season tickets and card tickets sold from each of the Central Railway stations in Greater Bombay for suburban trains during 1976-77.

TABLE No. 2

NUMBER OF SEASON TICKETS AND CARD TICKETS SOLD IN GREATER BOMBAY, 1976-77

Station 1	Season tickets 2	Card tickets 3
1. Bombay V.T.	3,73,10,050	74,02,692
2. Masjid	61,62,300	65,96,400
3. Sandhurst Road	65,96,050	48,85,336
4. Byculla	1,54,90,900	68,33,047
5. Chinchpokli	44,20,700	21,20,184
6. Currey Road	61,76,800	24,34,843
7. Parel	6,48,800	25,26,167
8. Dadar	1,46,86,050	90,59,719
9. Matunga	48,47,200	24,66,342
10. Sion	1,13,53,300	42,17,599
11. Kurla	3,45,63,132	1,14,31,617
12. Vidyavihar	22,22,850	32,95,008
13. Ghatkopar	3,78,28,850	1,06,34,259
14. Vikhroli	1,77,26,600	50,09,190
15. Kanjur Marg	77,97,850	20,08,307
16. Bhandup	1,90,31,050	42,99,882
17. Mulund	1,84,21,000	56,43,982
18. Dockyard Road	35,68,100	19,53,493
19. Reay Road	30,26,650	18,25,493
20. Cotton Green	65,22,950	22,24,468
21. Sewri	77,86,000	30,23,069
22. Vadala Road	1,15,61,850	12,58,666
23. King's Circle	60,56,750	21,71,370
24. Guru Teg Bahadur Nagar	70,51,550	23,99,498
25. Chunabhatti	24,25,250	9,62,780
26. Chembur	1,43,01,600	29,58,976
27. Govandi	91,03,750	37,83,421
28. Mankhurd	69,28,200	12,76,172
29. Mahim	13,30,900	14,15,288
30. Bandra	37,22,350	27,40,477

The following statement shows the through train passengers' traffic on Central Railway in Greater Bombay for the year 1976-77 :—

Station	Number of through train tickets sold during 1976-77	Station	Number of through train tickets sold during 1976-77
1. Bombay V. T. ..	23,56,888	12. Vikhroli ..	3,527
2. Masjid ..	8	13. Bhandup ..	8,561
3. Byculla ..	65,025	14. Mulund ..	42,822
4. Currey Road ..	6	15. Vadala Road ..	1
5. Parel ..	48	16. Chembur ..	1
6. Dadar ..	15,24,013	17. Girgaon Central Booking Office.	17,666
7. Matunga ..	4		
8. Sion ..	5	18. Kalbadevi Central Booking Office.	22,491
9. Kurla ..	83,401		
10. Vidyavihar ..	3	19. Mohammad Ali Road Central Booking Office.	22,932
11. Ghatkopar ..	6,873		

The division serves the largest industrial complex in the Bombay-Thane industrial belt, besides the port of Bombay. Consequently, the bulk of the goods traffic is in the form of terminal traffic rather than through traffic. The goods traffic from Bombay is handled at the following important yards and goods sheds : (1) Goods terminal at Wadi Bunder; (2) Byculla goods yard serving goods shed and sidings; (3) Interchange yard at Dadar for Central and Western Railways; (4) Goods yard at Trombay serving the Fertilizer Corporation sidings, Bharat Refineries sidings, Hindustan Petroleum Corporation sidings, Tata Thermal Power Station sidings, Indian Oil Blending Ltd. sidings, Union Carbide of India Ltd. sidings, and Calico Chemical Ltd. sidings; (5) Kurla goods yard serving all the industrial sidings and goods sheds from Sion to Bhandup area; and (6) New Mulund Goods Terminal.

The following statement shows the goods traffic of wagons loaded with tonnage in terms of four wheelers from each of the stations in Greater Bombay for 1975-76 and 1976-77 :—

Station	Year			
	1975-76		1976-77	
	Total No. of wagons	Total tonnage*	Total No. of wagons	Total tonnage*
Wadi Bunder	75,331	11,94,227	74,088	14,15,703
Sion	2,796	45,920	4,067	71,392
Kurla	311	4,828	281	3,685
Trombay	86,784	17,89,272	1,05,319	21,62,029
Vidyavihar	1,060	25,348	920	22,835
Ghatkopar	298	5,555	267	3,952
Vikhroli	2,093	13,863	2,044	14,628
Bhandup	1,891	37,601	1,924	39,036
Total ..	1,70,564	31,16,614	1,88,910	37,33,260

*In metric tonnes.

Number of wagons unloaded from each of the stations in Greater Bombay for 1975-76 and 1976-77 are as under:—

Station	Year			
	1975-76		1976-77	
	No. of wagons	Tonnage*	No. of wagons	Tonnage*
1. Wadi Bunder	97,082	16,20,282	99,142	16,71,056
2. Sion	9,120	1,82,400	18,467	3,69,340
3. Kurla	2,140	2,647	2,456	9,008
4. Trombay	26,694	6,11,891	29,862	15,69,602
5. Vidyavihar	10,729	3,67,366	11,161	3,53,592
6. Ghatkopar	3,513	70,260	5,036	1,00,720
7. Vikhroli	4,016	81,320	7,243	1,25,703
8. Bhandup	4,489	94,185	4,149	83,016
9. Mulund yard	570	13,913	7,474	2,59,657
Total ..	1,58,353	30,44,264	1,84,990	45,41,694

* In metric tonnes.

Workshops : There are three Central Railway Workshops in Greater Bombay, whose brief description is given below :

(1) *Signal and Telecommunication Workshop, Byculla* : This workshop undertakes repairs, periodical maintenance and manufacture of signal and telecommunication equipments. It also undertakes repairs of medical equipments. The manufactures of this workshop are self-printing ticket machines, C. P. valves, AWC-2 Zincs, wagon retarders, moped trolleys, multiplexing equipments, axle counters, etc. A full-fledged maintenance and repair cell for ultrasonic flaw-detectors and rail testers has been set up in this workshop. The strength of staff during 1976-77 in this workshop was approximately 950.

(2) *Locomotive Workshop, Parel* : Periodical overhauling, major repairs and special repairs to steam, electric, diesel hydraulic, diesel electric engines and cranes are undertaken in this workshop. A comparative statement of some important works done in this workshop is given below:—

	Year		
	1974-75	1975-76	1976-77
(1) Number of locomotives overhauled and repaired	241	248	264
(2) Number of cranes repaired and overhauled ..	33	40	40
(3) Number of non-loco boilers repaired ..	5	54	66

Locomotive components are also manufactured and supplied to different divisions of Central Railway. During 1976-77, the total strength of staff in this workshop was approximately 6,900.

(3) *Carriage and Wagon Workshop, Matunga*: This workshop undertakes major repairs, and periodical overhauling of carriages and wagons. Some important works undertaken during the past three years are given below:—

	Year		
	1974-75	1975-76	1976-77
(1) Number of carriages periodically overhauled and repaired.	3,263	3,568	3,609
(2) Number of wagons periodically overhauled and repaired.	3,189	4,341	4,113

During 1976-77, the total strength of staff employed in this workshop was 5,900 approximately.

(4) *Electric Multiple Unit Car Shed, Kurla* : As on 1st Nov. 1984, 904 suburban trains were run on the suburban sections of Bombay Division. All the rakes and coaches required for running these suburban trains are maintained in this shed. Periodical overhauling of electrical equipments of electric multiple unit coaches are also undertaken here. As on 31st March 1977, the capacity of holding of electric multiple unit coaches of this car shed was 718 of which motor coaches numbered 284.

The number of electric multiple unit coaches periodically overhauled and repaired at Kurla car shed during the three years was as under:—

Year	Periodically overhauled	Special repairs	Total
1974-75	303	23	326
1975-76	434	18	452
1976-77	444	21	465

In 1976-77, the total strength of staff in this car shed was 2,300 approximately.

(5) *Diesel Loco Shed, Kurla* : This loco shed undertakes the repairs of diesel hydraulic engines. In 1976-77, 54 diesel hydraulic engines were maintained in this loco shed. These locomotives are utilised mainly for yard shunting and for running pilots and shunters on Bombay-Kalyan section. The total strength of staff at this loco shed was 400 approximately.

There is a direct current electric loco shed at Kalyan where about 125 direct current electric locomotives are being maintained. These locomotives are utilised for running goods and passenger carrying trains on Bombay Division. There is a maintenance shed at Bombay V.T. for

undertaking repairs to passenger train engines. There is also a maintenance shed at Kalyan yard where goods train engines are repaired. A small servicing depot is also functioning at Wadi Bunder to attend to electric engines. Besides, there is also a steam loco shed at Kalyan which repairs and maintains 17 WG type steam engines. These steam engines are utilised mainly for yard shunting and pilot running.

The Thermal Power Station at Thakurli generates power for consumption on Central Railway lines. It also purchases power from other companies, transforms it into direct current and distributes to Central Railway lines. During 1976-77, it generated 26,39,52,000 KWH power and purçhased 23,26,80,000 KWH power from other companies and distributed 49,66,32,000 KWH power to Central Railway.

There is a general stores depot located at Currey Road and a scrap stores depot located at Haji Bunder.

Important Railway Buildings :

Victoria Terminus Station building : It is a two-storeyed building with stone masonry, load bearing structure built in Gothic-Saracenic style. This building was built in 1888 and named after Queen Victoria in honour of her Golden Jubilee on the 20th June 1887. It has a series of well proportioned and delicately ornamental arches, giving it the look of a ground cathedral. This effect is further heightened by a central dome set off by a number of smaller domes and conical towers reminiscent of Westminster Abbey.

This building is the administrative headquarters of Central Railway. Two multi-storeyed buildings were constructed later at Bombay V.T. to accommodate all the offices of the Railway on account of expansion of the activities of Central Railway.

The Divisional Headquarters of Bombay Division is also located near the old administrative building. Bombay V.T. is one of the biggest terminals in India. There are thirteen platforms at Bombay V.T. out of which five platforms are exclusively utilised for dealing with long distance passenger trains. In 1984-85, 25 down and 25 up mail/express/passenger trains were handled daily at these platforms. Eight platforms are exclusively available for dealing with suburban trains which arrive and leave V.T. on the three corridors *i.e.*, harbour branch, local lines and through lines. In 1984, 904 suburban trains (452 down and 452 up) were handled at Bombay V.T.

Both the suburban and main line stations at Bombay V.T. have waiting halls, Station Masters' office, booking offices, book-stalls, canteens, cloakrooms, etc. The main line station building contains a post and telegraph office, reservation and enquiry offices, retiring rooms, restaurants, cloakrooms, etc.

The office of the Divisional Superintendent is also situated in the divisional headquarters office at Bombay V.T. The passenger, goods and suburban trains' operation of the entire Bombay Division is controlled from this control office.

Central Railway Printing Press and Stationery Depot, Byculla : This is the only printing press of Central Railway where all printing work of Central Railway is undertaken. The printing work done and the stationery items manufactured amounted to Rs. 98·45 lakhs and Rs. 10·25 lakhs, respectively during 1975-76. The total strength of staff of this printing press was approximately 1,100.

Railway Hospital, Byculla : This is the headquarters hospital of the Central Railway where medical facilities are available for treatment of railway employees and their dependents. There are as many as 315 beds available in this hospital. During 1976-77, 10,053 patients were treated in this hospital.

Besides, there are four health units and four lock-up dispensaries in Greater Bombay area. Health units are located at Bombay V.T., Parel, Matunga and Kurla. Minor cases are treated in these units. Lock-up dispensaries are located at Trombay, Dock Yard Road, Guru Teg Bahadur Nagar and Wadi Bunder.

New Schemes :

Optimisation of Suburban Services : The existing suburban train services are short of transport requirements. In order to meet the increase in the suburban counter traffic, it is planned to increase the frequency of train services from the present 6 minutes to 5 minutes and ultimately to 3 minutes in the peak periods on all the three corridors, *i.e.* through lines, local lines and harbour branch lines. The work on the first phase for introduction of 5 minutes service had been sanctioned by the Railway Board and active measures were taken for increasing frequency of trains (1977). This involved mainly respacing of signals, modification in the level crossings, elimination of certain level crossings, construction of a new maintenance car shed at Kalwa for electric motor unit coaches and acquisition of more electric motor unit rakes.

A separate study has also been made by the Metropolitan Transport Project (Railways) for an additional corridor between Goregaon and Fort Market involving an investment of Rs. 154 crores with a new underground terminal near Fort Market. The study also envisages an additional pair of lines between Bhandup and Kurla as an extension of the present Harbour Branch line. Its implementation is under consideration.

In connection with the optimisation of suburban services, certain proposals are also under consideration of the Railways for implementation. They include (*a*) remodelling of V.T. suburban platforms for

double discharge facilities similar to Churchgate station (*i.e.* platforms on both sides of a train) and speedier outlet through the suburban concourse; and (*b*) doubling of Chembur-Mankhurd single line section (4 kms) to facilitate an increase in the number of trains on Chembur-Mankhurd section.[1]

Remodelling of Mazgaon Yard : As V.T. yard is space bound and no major expansion is possible to deal with longer trains of more than 12 bogies, the Railways have developed Mazgaon Yard as an auxiliary yard to deal with longer trains. The work of remodelling of Mazgaon yard is being undertaken phase-wise. Certain remodelling works are already being completed and some more phases are required to be undertaken at the earliest. The total estimated cost of remodelling Mazgaon yard is Rs. 1·03 crores.

Development of New Mulund Goods Terminal : A large number of industries has been set up in and around Thane area. In order to meet the needs of the same, a new goods terminal is being developed at Mulund, at an estimated cost of Rs. 1·41 crores. Certain works in the first phase have been completed and the goods shed at present is open for inward traffic of certain commodities like iron and steel.

WESTERN RAILWAY

This railway was originally constructed and owned by the Bombay, Baroda and Central India Railway Co., which was found in 1855. The first survey of the line from Bombay to Baroda was completed by Col. Kennedy in 1854. Afterwards the Bombay, Baroda and Central India Railway Co. was incorporated by an Act of Parliament dated 2nd July 1855, and on 21st November in that year concluded with the East India Company a contract for the construction of railway line from Surat to Baroda and Ahmedabad. On the 2nd February 1859 a further contract was entered into for the construction of a line southwards from Surat to Bombay. The work of constructing the Bombay, Baroda and Central India Railway was commenced in May 1856, and the first section from Amroli to Ankleshwar, $28\frac{3}{4}$ miles was opened for traffic in February 1860. In January 1861, a line of $43\frac{3}{4}$ miles was opened from Baroda to the south and before the end of the year, communication between Bulsar and Baroda (123 miles) was established. This line was not connected with Bombay until November 1864, when the main line to Ahmedabad may be said to have been completed. The railway lines between various stations within the limits of Bombay had been opened on the following dates : (1) from Colaba to Marine Lines on 18th January 1870, (2) from Marine Lines to Charni Road on 19th June 1869, (3) from Charni Road to Grant Road on 3rd September 1868 and (4) Grant Road and beyond on 28th November 1864. The

[1] This work has been completed.

whole line from Bombay (Colaba) to Wadhwan was opened for traffic in 1872. There is a major bridge across the Mahim Creek between Mahim and Bandra.

The portion between Colaba terminus and Churchgate was dismantled in 1936 and since then Churchgate was made a terminus of suburban train services. The local train service was introduced on this railway in 1918. The dates of first opening for public service of electrified sections in this area are (1) Colaba to Borivli on 5th January 1928 (two tracks), (2) Borivli to Virar on 1st September 1936, (3) Bandra to Andheri (through line tracks) on 15th April 1953 and (4) Andheri to Borivli (through line tracks) on 1st April 1955. Quadrupling between Borivli and Grant Road was completed in 1925; while the quadrupling between Churchgate and Grant Road was completed in 1972.

With effect from 1st January 1942, the lines worked by Bombay, Baroda and Central India Railway came to vest in the Government of India and the present zone *viz.*, Western Railway was formed on 5th November 1951. From 1880 onwards the goods traffic has steadily expanded, owing to the rapid growth of industries, trade and commerce in Bombay. An increase of passenger traffic was likewise noticeable between the city and its suburbs. Excluding the terminus of local trains *i.e.*, Churchgate, the Western Railway has 21 stations within the limits of Greater Bombay, *viz.*, (1) Marine Lines, (2) Charni Road, (3) Grant Road, (4) Bombay Central, (5) Mahalaxmi, (6) Lower Parel, (7) Elphinstone Road, (8) Dadar, (9) Matunga Road, (10) Mahim Junction, (11) Bandra, (12) Khar Road, (13) Santacruz, (14) Vile Parle, (15) Andheri, (16) Jogeshwari, (17) Goregaon, (18) Malad, (19) Kandivli, (20) Borivli and (21) Dahisar. Between all these stations a large number of persons travel daily, and perhaps the most noticeable increase is between the terminus and suburban places outside the Bombay city area and also the places outside Greater Bombay. Due to shortage of accommodation within the Bombay area many persons reside in the suburban area as also in the adjoining area of Thane district and daily attend their duties in Bombay. The suburban services of the Western Railway in Bombay area are run on the two independent sets (corridors) of double line. The main suburban section extend from Churchgate to Borivli. These quadruple lines are provided automatic signalling. The local trains are run by the electric multiple unit coaches. The trains running on this line at present are : (1) Gujarat Express, (2) Ferozepur Janata Express, (3) Saurashtra Express, (4) Jammu Tavi Express, (5) Pashchim Express, (6) Flying Ranee, (7) Rajdhani Express, (8) Saurashtra Janata Express, (9) Valsad Express, (10) Ahmedabad Janata Express, (11) Saurashtra Mail, (12) Frontier Mail, (13) Gujarat Mail, (14) Dehradun Express, (15) Vadodara Express, (16) Ahmedabad Express, (17) Vadodara Passenger, (18) Ahmedabad Passenger and (19) Viramgaon Passenger.

The local train service is provided from Churchgate to Virar. The daily number of local trains was 758 in 1984. The average service frequency of the Western Railway suburban trains was 3½ minutes during 1969 which increased to 2 minutes in 1977.

During 1969-70, the Western Railway ran the suburban train services with the fleet of 37.1/3 rakes of the electric motor unit stock and with an average punctuality of 88 per cent. Of this fleet, comprising 16 rakes of 8 coaches commissioned in 1928 and 21.1/3 rakes of 9 coaches commissioned after 1951, 31.1/3 rakes were given for traffic, four rakes for periodical overhaul, one rake for ten day inspection and one rake for heavy repairs.

Table No. 3 shows the statistics of passenger traffic from each of the stations on Western Railway situated within the limits of Greater Bombay during 1974-75.

TABLE No. 3

PASSENGER TRAFFIC ON WESTERN RAILWAY IN GREATER BOMBAY, 1974-75

Station	No. of card tickets sold*	No. of season tickets sold*
(1) Churchgate ..	47,63,288	4,99,329
(2) Marine Lines ..	23,28,178	62,482
(3) Charni Road ..	28,05,042	1,29,599
(4) Grant Road ..	57,17,317	2,11,704
(5) Bombay Central ..	67,82,376	1,31,650
(6) Mahalaxmi ..	16,89,495	62,869
(7) Lower Parel ..	25,02,899	1,65,605
(8) Elphinstone Road ..	26,36,410	1,55,615
(9) Dadar ..	80,53,689	2,91,094
(10) Matunga Road ..	17,66,539	85,356
(11) Mahim Junction ..	34,78,336	1,78,728
(12) Bandra ..	50,27,366	3,12,928
(13) Khar Road ..	34,35,600	2,16,404
(14) Santacruz ..	55,96,533	3,49,684
(15) Vile Parle ..	40,37,493	1,89,175
(16) Andheri ..	92,11,752	7,29,433
(17) Jogeshwari ..	30,02,060	3,13,574
(18) Goregaon ..	45,27,329	3,91,531
(19) Malad ..	54,44,736	4,29,294
(20) Kandivli ..	25,26,415	1,05,420
(21) Borivli ..	51,50,206	6,02,044
(22) Dahisar ..	7,88,922	96,109

*Includes Tickets for Suburban and Through Line trains.

The following statement shows the statistics of goods traffic from the important stations on Western Railway within the limits of Greater Bombay during 1974-75:—

Station	Goods traffic received		Goods traffic booked	
	No. of wagons	Tonnage*	No. of wagons	Tonnage*
(1) Dadar	4,953	96,935	732	12,212
(2) Mahim Junction ..	1,598	23,478	871	7,406
(3) Bandra	10,887	39,791	3,606	33,739
(4) Andheri	6,536	1,26,864	690	11,195
(5) Jogeshwari	45,147	2,42,699	8,516	93,707
(6) Goregaon	2,078	11,805	540	5,908
(7) Kandivli	3,303	74,927	840	15,932
(8) Borivli	2,273	85,598	388	1,808
(9) Carnac Bunder ..	37,251	5,08,958	44,567	7,32,652

*In metric tonnes.

Workshops[1] :

Loco Sheds : There are two loco sheds situated in the Greater Bombay area on the Western Railway. They are at Parel and Bandra which cater to servicing facilities like coaling, turning, cleaning, greasing, oiling, etc. along with running repairs and scheduled repairs to the locomotives of Western Railway.

Parel Loco Shed : This loco shed homes about 40 engines, out of which 75 per cent engines are utilised for working mail, express and passenger trains on the lines of the Bombay and Baroda Divisions. The shed is equipped with a number of machines for undertaking jobs required for the maintenance of these engines. The staff engaged in this shed was about 675 during 1969-70. In addition to the mail, express and passenger train engines, this shed also homes some small engines which are utilised for shunting services.

Bandra Loco Shed : It homes about 50 steam and diesel engines, steam engines mainly utilised for shunting services in the Bombay area. During 1970, out of 13 diesel locomotives, 11 were shunting locomotives. This shed is also equipped with a fleet of machinery for maintenance of these engines. The diesel shunters are also periodically overhauled here. About 1,050 persons were engaged in this shed during 1970.

Carriage Shops : There are two carriage shops situated at Lower Parel and Mahalaxmi. The Lower Parel carriage workshop was built in 1900 by the *ex*-Bombay, Baroda and Central India Railway, as a central workshop for repairs to broad gauge locomotives, carriage and wagon stock. The workshop being situated in the heart of Bombay had limitations

[1] For detailed history of Railway Workshops in Bombay, *see* Chapter 5 in this volume.

to further expansion. As such with the increase in holding of various types of stocks, the repair work of locomotives was shifted to the newly built workshop at Dohad during 1928. Similarly a new wagon repair shop was constructed at Kota during 1962. After the transfer of work-load of loco and wagon repairs to Dohad and Kota respectively, the Lower Parel and Mahalaxmi workshops are presently undertaking the work of periodical overhaul repairs to the broad gauge coaching stock only. The Lower Parel workshop possesses an area of 2,56,309 square metres, while the Mahalaxmi workshop possesses 1,70,484 square metres. These shops are under the incentive scheme based on the Chittaranjan pattern.

Electric Car Shed, Bombay Central : All the maintenance of the electric motor unit stock, except the mechanical periodical overhaul, which is attended to in the Parel workshop, is dealt with in the car shed at Bombay Central. The maintenance of electric motor coaches comprises casual inspection, washing and painting of electric motor unit coaches, brake block changing and stabling inspection, periodical inspection, overhaul of equipments, special repairs, and periodical overhaul.

The car shed is divided into two portions, *viz.*, workshop and running shed. The workshop consists of machine shop, fitting shop, pantograph overhauling section, armature winding section, auxiliary machine section, control equipment overhaul section, north lifting shed for wheel changing, south lifting shed for equipping new coaches traction motor section, and fan and light section. There are two electrically operated overhead travelling cranes in the lifting sheds, of them one is of 25 tonnes and another of 5 tonnes. The running section consists of a covered shed with 8 inspection pit lines and two electrified stabling lines outside the covered area.

Inspection of Electric Motor Unit Coaches : During 1970 inspection was carried out on 11 rakes per day. There are five depots for stalling the rakes at Churchgate, Bandra, Andheri, Borivli and Virar. Number of equipments fitted on the electric motor unit coaches require periodical overhaul at intervals lesser than the general overhaul.

Periodical Overhaul of Electric Motor Unit Coaches: The periodical overhaul of electric motor unit coaches is carried out at intervals of 17 months. The electrical equipment is stripped first in the car-shed and then the coaches are sent to Mahalaxmi, where the body work and mechanical equipment are attended to. After the coaches are received back from Mahalaxmi, the electrical equipment, which in the meanwhile has been duly overhauled, is re-equipped on the coaches and the coaches are sent on trial runs and then into service.

A mechanical coach washing machine was built up and commissioned in April 1958 in the car-shed to facilitate the external washing of electric motor unit coaches. Electric motor unit coaches are painted in the Lower Parel shop every 17 months, during the periodical overhaul.

Important Railway Buildings :

Administrative Office building, Churchgate : The Administrative Office Building at Churchgate Railway Station was built by the former Bombay, Baroda and Central India Railway between 1894 and 1899. The annexe was built in 1927. The carpet area of these buildings is about 63,000 square feet. This building is considered to be a very good specimen of architectural work in Gothic style and depicts the glory of that time.

Churchgate Terminal Station : Due to tremendous expansion of industry and trade in this metropolis, traffic on the suburban section has increased a good deal and old station had to be remodelled. The first station, a small humble structure was built as early as in 1876 when the old Bombay, Baroda and Central India Railway, the forerunner of the Western Railway of today, extended its line from Surat to Bombay. This station building was rebuilt in 1931. This rebuilt structure was to be pulled down in September 1956 to make way for the enlarged station of today to cater to the needs of suburban passenger traffic. Three platforms with double discharging facilities were built in 1956. The fourth platform with double discharging facilities was built in 1972 at the time of quadrupling of railway lines between Churchgate and Grant Road. It is a seven-storeyed building and is 108 feet high. It was constructed in 1956 at the cost of Rs. 65 lakhs. It has a spacious concourse hall $116' \times 44'$, booking offices, refreshment rooms, wash basins, water closets with modern sanitary fittings. The station has been provided with route relay interlocking system, and this was the first of its type to be commissioned in India.

Bombay Central Station : This terminus station building was constructed in 1930. The old Bombay Central Station, which is now utilised for suburban train services, is situated just north of Bellasis bridge. The new station consists of an imposing 3-storeyed structure. The cost of the scheme including acquisition of land, siding accommodation and accessories amounted approximately to Rs. 156 lakhs. The main entrance leads to a lofty and spacious concourse on one side of which are the platforms and on the other side on the ground floor, there are waiting rooms including a buffet for light refreshment.

Jagjivan Ram Hospital, Bombay Central : It marks an important stage in the planned expansion of medical facilities on the Indian Railways. The hospital was planned to cater for 150 beds. The total area of the hospital compound is 3.63 acres and the plinth area occupied by the hospital building is 28,203 square feet. It has four floors and a basement in the rear wing.

Printing Press, Mahalaxmi : The Western Railway Printing Press building at Mahalaxmi was constructed during 1968-69 at a cost of Rs. 44 lakhs. The building has 3 floors with a basement of 10,000 square feet.

PORT TRUST RAILWAY

Prior to 1914, the docks were not served by rail. As the traffic between the port and the hinterland developed, the two main railways laid out capacious goods yards in close proximity to and connected with the Prince's and Victoria Docks by three sidings crossing the Frere (now the P. De'Mello) Road. It was, however, found that the sidings could accommodate only a fraction of the import and export traffic. The bulk of the traffic was conveyed from ship to rail and *vice versa* in bullock carts. This expensive method continued until the completion and opening of the Port Trust Railway on 1st January 1915. In planning the railway layout the designers had the advantage of ample land which enabled them to adopt the best alignment and the most modern principles of railway transportation without disturbing the existing interests. In consequence the port today is well equipped as regards terminal railway facilities. The Port Trust Railway provides a link between the docks, the bunders and the various depots in the Port area and the two contiguous Main line railway system.

The excellent terminal railway facilities provided by the Bombay Port Trust have contributed materially to the development of the port. Though small in size, the Port Trust Railway carries a large volume of traffic. In 1969-70, the inward and outward traffic amounted together to 3.70 million tonnes. In addition to through traffic, the Port Trust Railway handles a sizable quantity of local, or station to station traffic. Such traffic amounted to 1.67 lakh tonnes in 1969-70. The Port Trust Railway handles about 60 per cent of the total rail-borne goods traffic of Bombay city.

The Port Trust Railway has a route kilometrage of 11.3 and a track kilometrage of 312. There are 10 stations serving the docks and depots *viz.*, Wadala Oil Depot, Stores and Coal Depot, Manganese Depot, Grain Depot, Cotton Depot, Panton Bunder, Prince's and Victoria Docks, Alexandra Dock and Ballard Pier.

Wadala is at the extreme north end and is a junction station. It is mainly a marshalling yard for the despatch and receipt of goods trains. Trains are received in the Up Arrival Yard and sorted out for the various depots over the hump by gravity, the wagons being rolled down the hump and then are diverted along different lines by hand points. Outward loaded traffic from depots is received in the Down Arrival Yard and is sorted out over the Down Gravity Hump on the different lines where trains are formed for the Western and Central Railways and beyond.

The steam loco and the diesel loco sheds are situated at the south end of the Wadala Yard. There is also a small goods shed where traffic is handled.

Tables Nos. 4 and 5 show the goods traffic on the Bombay Port Trust Railway:—

TABLE No. 4

COMMODITIES LOADED ON BOMBAY PORT TRUST RAILWAY FOR TRUNK RAILWAY STATIONS DURING 1973-74 AND 1974-75

Serial No.	Commodities	Metric Tons (Fig. in '00)	
		1973-74	1974-75
1	Animal food	13	*
2	Asbestos fibres	50	94
3	Asbestos-raw	49	....
4	Blended food	51	37
5	Barytes	*	*
6	Bricks, tiles and stones	*	*
7	Bulgar wheat	*	*
8	Chemical fertilizers other than rock phosphate	4,188	5,410
9	Chemicals and insecticides	168	78
10	Clay, chunam, lime and sand ..	16	*
11	Coal	183	35
12	Colour	*	*
13	Corn soya mixture	18	*
14	Cotton-raw	29	*
15	Earth	*	21
16	Empty gunny bags	19	*
17	Flour	27	14
18	Government and military stores ..	502	696
19	Grains and pulses	2,460	2,034
20	Grease	20	16
21	Iron and steel	1,101	1,686
22	Machinery	323	281
23	Manganese ore	*	30
24	Manure	*	28
25	Milk powder	25	10
26	News prints	221	107
27	Oil seeds	29	*
28	Oil cakes	65	36
29	Old newspapers, etc.	17	*
30	Pipes	*	13
31	P. O. L.—		
	(*i*) Light distillates	8,256	5,400
	(*ii*) Middle distillates	937	834
	(*iii*) Others	504	517

TABLE No. 4—*contd.*

Serial No.	Commodities	Matric Tons (Fig. in '00)	
		1973-74	1974-75
32	Railway materials	124	61
33	Rice	57	232
34	Rice bran	16	20
35	Road surface dressing	128	74
36	Rock phosphate	436	159
37	Rosin	....	*
38	Rubber goods	*	10
39	Salt	111	102
40	Soap	*	*
41	Sulphur	485	492
42	Tallow	29	*
43	Tractor	79	113
44	Tyres	*	....
45	Vegetable and other oils	367	69
46	Wheat	1,766	3,063
47	Wood pulp	31	19
48	Wood and timber	72	107
49	Miscellaneous	108	135
	Total ..	20,080	22,141

*Included in miscellaneous.

TABLE No. 5

PRINCIPAL COMMODITIES BOOKED FROM TRUNK RAILWAYS TO B.P.T. RAILWAY DURING 1973-74 AND 1974-75

Serial No.	Commodities	Metric Tons (Figs. in hundreds)	
		1973-74	1974-75
1	A. C. Sheets and boards ..	38	170
2	Barytes ..	367	333
3	Bonemeals, crushed bones, hides and skins	447	383
4	Bentonite powder ..	50	122
5	Bricks, tiles and stones ..	748	735
6	Cables and cable drum ..	*	61
7	Calcium carbonate ..	*	*
8	Cement clinkers and slag ..	856	1,207
9	Charcoal ..	690	950

* Included in miscellaneous.

TABLE No. 5—*contd.*

Serial No.	Commodities	Metric Tons (Figs. in hundreds)	
		1973-74	1974-75
10	Chemical fertilizers other than rock phosphate.	85	28
11	Chemicals, insecticides, etc. ..	*	34
12	Clay, chunam, lime and sand ..	122	77
13	Coal and coke ..	1,167	1,161
14	Dolomite lump and powder ..	35	*
15	Earth (Red Oxide etc.) ..	20	*
16	Empty tins, drums, casks, etc. ..	26	30
17	Ferro manganese ..	238	213
18	Fibre glass ..	10	..
19	Grain and pulses (other than wheat and rice).	331	138
20	Government and military stores ..	140	198
21	Gunny bags ..	57	14
22	Gypsum ..	45	32
23	Iron and steel (including tinplate) ..	1,469	2,094
24	Iron scrap ..	34	66
25	Machinery ..	186	17
26	Manganese ore ..	91	*
27	Mica waste and powder ..	40	39
28	Molasses ..	..	..
29	Oil-cakes ..	2,584	1,672
30	Oilseeds ..	174	264
31	Ochre lum, powder, etc. ..	21	13
32	Newsprint ..	*	59
33	Paraffin wax ..	75	55
34	Pipes ..	*	59
35	P.O.L.—		
	(*i*) Light distillates ..	863	1,086
	(*ii*) Middle distillates ..	88	..
	(*iii*) Others ..	391	326

* Included in miscellaneous.

TABLE No. 5—*concld.*

Serial No.	Commodities	Metric Tons (Figs. in hundreds)	
		1973-74	1974-75
36	Piece goods ..	13	27
37	Pig-iron ..	*	*
38	Railway material ..	28	*
39	Raw cotton ..	1,241	647
40	Rice ..	1,482	1,373
41	Rice bran ..	60	81
42	Rosin ..	30	14
43	Soda bicarbonate ..	13	14
44	Soda ash ..	32	*
45	Soap and soap stone powder ..	159	113
46	Starch powder ..	12	*
47	Sugar ..	1,234	1,476
48	Tallow ..	*	..
49	Vegetable and other oils ..	621	592
50	Wheat ..	2,162	53
51	Wood pulp ..	..	*
52	Wood and timber ..	152	309
53	Miscellaneous ..	76	67
	Total ..	18,793	16,340

*Included in miscellaneous.

During 1974-75 the volume of through traffic from and to the Trunk Railways registered a marginal decrease as compared to that of the previous year. The figures in terms of wagons and the tonnage handled during two years are given below:—

	Wagons		Tonnes
	Inward	Outward	
1973-74 ..	93,476	1,02,201	38,87,300
1974-75 ..	83,642	1,11,235	38,48,100

The local traffic during the year 1974-75 registered a decrease mainly due to fall in export of oil cakes and manganese ore from Bombay Port. The comparative figures for the two years are given below:—

	Wagons		Tonnes
	Inward	Outward	
1973-74 ..	12,498	12,498	4,37,400
1974-75 ..	9,730	9,817	3,10,000

TRANSPORT BY AIR

The period from 1877 to 1910 was a period of experiments in the history of civil aviation in India. On November 27, 1877 Mr. Joseph Lynn made a flight from Lal Baugh Garden in Bombay at 4-40 p.m.[1] He ascended to an altitude of 7,500 feet and landed near a stone quarry at Dadar. On November 30 of the same year he made another balloon flight from the same place. Flying began in India in 1911 when Sir George Lloyd undertook the organization of air flying between Bombay and Karachi. The First World War established, beyond doubt, that India was lagging behind in civil aviation. When the air service between Bombay and Karachi was started, it was purely a Government venture and was established as a temporary and experimental measure during the fair weather season with the object of testing the extent to which the air mail service was likely to be used by the public. It was closed down as soon as sufficient data as to running expenses had been collected and its continuance as a purely commercial concern was not advocated.

The general attitude of the Government was that as no air services in the world had yet been run without a government subsidy and as India had no money available for the development of civil aviation, she must wait for some prosperous time. The pressure of external conditions in favour of Indian aviation enterprise gradually increased.

In 1927, the Civil Aviation Department was opened, aerodromes were established; and flying clubs were founded at certain places. The Imperial Airways Service started a regular weekly air service between Croydon and Delhi. In 1932, internal services were started by the Tata Airways Ltd., between Allahabad, Calcutta and Colombo. It was an effective

[1] *Transport Development in India* by Dr. S. K. Shrivastava.

Indian enterprise which organised an air service between Karachi and Madras once a week with calls at Ahmedabad, Bombay and Hyderabad. From the beginning of 1935 the Imperial Airways' London-Karachi service and with its Trans-India Service to Calcutta and the feeder services Karachi-Lahore and Karachi-Bombay-Madras, were operated twice a week. Among the three first air routes taken for development after 1935, the Karachi-Bombay-Madras-Colombo was the major air route.

The progress of air transport in India was very slow in the initial stages. Air transport has developed so much as to warrant a special treatment, and the importance of Bombay calls for a careful consideration as there are future possibilities of further development.

Bombay Airport : Bombay is one of the principal international airports, which is connected by air service to almost all important cities in the world. Bombay's position in the international air traffic is very significant as it is located on the main air trunk routes to the European countries, Far East countries, South-East Asian countries, other Asian countries, Australia, African countries, Gulf countries, etc.

At present there are three aerodromes in Bombay *viz.*, Juhu aerodrome, Santacruz Airport and Sahar International Airport.

On October 15, 1932, a tiny aircraft, Puss Moth, landed at the airport at Juhu with mail bags from Karachi. It was pilotted by J. R. D. Tata[1] an eminent industrialist. This was the beginning of civil aviation from Bombay which is today the biggest and the most modern airport in India.

The Juhu airport, two and a half kilometres from the present domestic terminal, is still in existence. It is now used by a Flying Club and private operators. From all standards Juhu airport in the thirties of this century was a good airport, and continued to be used by the airlines till 1945. At Juhu Airport a small terminal building handled the passenger traffic. The modest control tower was good enough to guide the small aircrafts of those days. Night flight was rare as the airport was not equipped well for the same. When essential kerosene goose-necks were used for guiding aircrafts at night.

New Airport at Santacruz : During the World War II, the bigger fighters and aircrafts of the Air Force, bombers and other large transport planes, required longer and stronger runways. Their operation also warranted better ground equipment and electronic devices. Juhu airport located at the sea edge could not cope up with these requirements, neither

[1] On occasion of the Golden Jubilee of Air India on 15 October 1982, J. R. D. Tata pilotted an old tiny aircraft of Puss Moth type at the age of 75.

there was any space for the essential expansion. It was therefore, decided to build a spacious airport at Santacruz with the necessary equipment. The Santacruz Airport covered an area of about 1,500 acres (607 hectares). It had three runways initially. It was operationally a good airport for the requirement of those days. After the end of the Second War the airport was handed over to the Director General of Civil Aviation for Civil operations.

Two abandoned Royal Air Force old hangars, which are still in existance and are being used by private operators, were converted into a terminal for passenger traffic. When commercial aviation shifted to the present Bombay airport, one hangar was used as a domestic terminal and the other for international traffic. It had counters for customs and immigration checks on either side and a lounge in the centre. Air India International was handling its passengers in its own terminal, adjoining the two hangars. It was a tiny red brick tiled building, tucked in a corner.

With the tremendous growth of air services and more modern airlines coming to Bombay, the need for a proper terminal building to provide comfortable lounges and passenger handling areas was felt. The modern aircrafts could not be operated with ease from the airport. Besides, there was a tremendous increase in the number of passengers, domestic and international. A new terminal was therefore planned and construction began in 1950 at Santacruz. The year 1958 was a landmark in the history of Bombay airport when the new terminal building was opened with all the fun-fare.

April 18, 1971 was by far one of the most important landmarks in the history of civil aviation in India. The Air India International's first Boeing 747 landed at Bombay airport, ushering in the era of Jumbo travel. A series of modifications and extensions of the terminal building and improvement of operational areas were essential to meet the new requirements. The Tata committee set up in 1967 to examine the issues, recommended the construction of a new international terminal at Bombay to meet the requirements of traffic in the seventies. The present terminal was to be used for domestic traffic alone. The International Airport Authority of India which was set up in 1972, started planning the construction of a new terminal building for handling international passenger traffic. Accordingly construction of the new International airport at Sahar to the north-east of Santacruz was taken up. The estimated cost of this airport was Rs. 11 crores, and it was proposed to be completed by 1981. Government sanction was received in early 1976, construction of the Phase-I of the terminal complex began at Sahar immediately. The new terminal at Sahar was opened for traffic in 1980.

New Terminal Complex, Sahar : The new complex is located near Sahar Village in Bombay on the east of the old terminal building and north of the main east-west runway og/27.

The two runways, the main runway og/27, 3,489 metres long, and secondary runway 14/23, 2730 metres long continue to serve the airport. The apron of the new terminal building has been connected to the runway system through taxi links.

The terminal building designed on modular concept will be completed in three phases. Each module has a capacity of handling 2.5 million international passengers. When completed the terminal building will have 1,20,000 sq. metres of covered area; 750 sq. metres long with a width of 65 metres. It will have a total capacity of handling 7.5 million international passengers per annum. The apron will have capacity for parking 15 aircrafts in contact and 12 in remote position.

The first phase of the international passenger terminal complex, completed at a cost of Rs. 180 millions, has a passenger terminal cargo complex, apron and airfield pavement areas for taxi links. The passenger terminal has capacity for handling 2.5 million passengers annually or 2,100 passengers during peak hours, in greater comfort and ease. The apron can park 15 aircrafts; six nose-in, seven remote and two freighters.

The Government of India has sanctioned the second phase, costing Rs. 220 millions. It involves construction of one module with a capacity of 2.5 million passengers and apron for 4 in-contact and three remote parking stands. The project was completed in 1984.

The approach to this new terminal is from the north from Kurla-Andheri road. Passengers going to Thane and Ghatkopar areas can take advantage of the short route *via* Powai. Those passengers going to the southern and northern part of the city, can avail of the Western Express Highway *via* Kurla-Andheri road. The new link is being constructed to connect the terminal with the Sahar Cargo terminal road.

The highlights of the New Bombay Terminal (Phase I) at Sahar are given below:—

(1) Terminal—Length—249 metres
Width—65 metres

(2) Covered area, four floors—41,800 sq. metres.

(3) Passengers handling capacity—Annually 2.5 million persons.
Peak hour—2,100 persons.

(4) Custom counters—Arrival—52
Departure—10

(5) Immigration counters—Arrival—20
Departure—14

(6) Health counters—6

(7) Airlines counters—40

(8) CC-TV monitors—100

(9) Public announcement speakers—900

(10) Fire/smoke detectors—1,000

(11) Light fittings—6,000

(12) Cable/wiring—260 kms.

(13) Baggage conveyors' length—620 metres.

A cargo terminal is an integral part of the new complex with a separate aircraft parking apron. It handles both export and import cargo. It is a multiple occupancy terminal in which all cargo coming in and going out of the Bombay airport is processed in the complex. Various Government agencies connected with the clearance of the cargo are housed in the terminal building. The terminal has two separate parking bays for Boeing 747 type freighter aircraft

The major problems of modern air transport system are experienced on the ground rather than in the air. In order to solve them, a difficult task for any airport, an entirely new approach has been made to avoid bottlenecks and ensure smooth processing of passengers and their baggage in the new terminal building at Bombay airport which will have a total capacity of about 7,000 persons at any time. The flight information system, pictographs, baggage handling system and escalators, aerobridges have all been designed to meet the requirements of passengers as per the latest standards.

The monthwise traffic statistics for the year 1980-81 from the Santacruz (domestic) and Sahar (international) airport are given in Table No. 6, while Table No. 7 gives the percentage of principal items of Imports and Exports from both the airports.

The Santacruz airport is known as Terminal I, while the Sahar International airport is known as Terminal II.

TABLE

INTERNATIONAL AIRPORTS AUTHORITY OF INDIA,

	April 80	May 80	June 80	July 80	August 80	September 80
I. AIRCRAFT MOVEMENT—						
(*i*) *International*—						
(*a*) Scheduled	2,501	2,522	1,655	1,805	1,748	1,698
(*b*) Non-scheduled.	96	74	42	75	67	83
Total ..	2,597	2,596	1,697	1,880	1,815	1,781
(*ii*) *Domestic*—						
(*a*) Scheduled.	1,690	1,264	1,710	1,894	1,856	1,848
(*b*) Non-scheduled	30	22	14	177	172	202
Total ..	1,720	1,286	1,724	2,071	2,028	2,050
Grand Total ..	4,317	3,882	3,421	3,951	3,843	3,831
Other flights ..	....	....	....	....	....	....
II. PASSENGERS—						
(*i*) *International*—						
(*a*) Embarked.	93,835	98,072	82,726	89,856	1,02,851	1,05,979
(*b*) Disembarked.	66,605	72,429	91,140	87,481	85,301	66,863
(*c*) Transit ..	56,203	47,818	7,007	52,064	39,369	34,339
Total ..	2,16,643	2,18,319	1,80,873	2,29,401	2,27,521	2,07,181
(*ii*) *Domestic*—						
(*a*) Embarked.	1,03,721	1,07,156	92,785	92,156	90,448	85,272
(*b*) Disembarked	80,237	88,286	82,484	83,866	85,124	89,522
Total ..	1,83,958	1,95,442	1,75,269	1,76,022	1,75,572	1,74,794
Grand Total ..	4,00,601	4,13,761	3,56,142	4,05,423	4,03,093	3,81,975

No. 6

BOMBAY AIRPORT TRAFFIC STATISTICS—1980-81

October 80	November 80	December 80	January 81	February 81	March 81	Grand Total
1,708	1,683	1,820	1,746	1,593	1,723	22,202
100	99	167	64	120	67	1,054
1,808	1,782	1,987	1,810	1,713	1,790	23,256
1,870	1,756	1,908	1,856	1,674	952	20,278
214	205	286	52	33	141	1,548
2,084	1,961	2,194	1,908	1,707	1,093	21,826
3,892	3,743	4,181	3,718	3,420	2,883	45,082
....	....	....	....	....	....	....
87,468	86,702	86,729	1,13,947	99,783	1,07,193	11,55,041
83,329	86,938	1,07,942	88,539	71,041	79,902	9,87,510
29,470	31,300	16,969	44,657	41,241	44,311	4,44,748
2,00,267	2,04,940	2,11,640	2,47,143	2,12,065	2,31,406	25,87,399
1,33,283	1,08,638	1,24,353	1,16,734	1.04,435	1,03,736	12,62,717
90,331	97,810	1,05,481	1,47,636	1,00,622	1,01,529	11,52,928
2,23,614	2,06,448	2,29,834	2,64,370	2,05,057	2,05,265	24,15,625
4,23,881	4,11,388	4,41,474	5,11,513	4,17,122	4,36,671	50,03,044

TABLE

	April 80	May 80	June 80	July 80	August 80	September 80
III. CARGO HANDLED— (in tonnes)						
(i) *International*—						
(a) Loaded ..	3,936.719	4,424.786	3,458.981	3,594.433	3,270.508	2,924.116
(b) Unloaded..	1,419.570	1,318.986	475.101	1,362.729	1,912.095	1,474.190
Total ..	5,356.289	5,843.772	3,934.082	4,957.162	5,182.603	4,398.306
(ii) *Domestic (Kgs)*—						
(a) Loaded ..	935.492	871.057	821.603	904.780	328.971	892.097
(b) Unloaded	751.785	710.836	246.501	911.891	947.760	909.823
Total ..	1,687.277	1,581.893	1,068.104	1,816.671	1,276.731	1,801.920
Grand Total ..	7,043.566	7,425.665	5,002.186	6,773.832	6,459.334	6,200.226
IV. MAIL (in tonnes)—						
(i) *International*—						
(a) Loaded ..	176.725	184.053	188.026	213.077	192.077	192.708
(b) Unloaded	131.958	130.133	143.280	102.070	299.698	141.509
Total ..	308.683	314.186	331.306	315.147	401.775	334.217
(ii) *Domestic*—						
(a) Loaded ..	336.697	335.825	334.405	352.604	844.582	1,202.008
(b) Unloaded	222.474	211.443	660.395	276.284	262.737	257.757
Total ..	559.171	547.268	994.800	628.888	1,107.319	1,459.765
Grand Total ..	867.854	861.454	1,326.106	944.035	1,509.094	1,793.982

No. 6—*contd.*

October 80	November 80	December 80	January 81	February 81	March 81	Grand Total
1,299.204	1,223.920	3,697.290	3,753.401	1,325.149	343.735	33,252.386
1,668.204	1,019.983	1,732.529	1,385.964	1,060.982	1,673.162	16,503.495
2,967.408	2,243.903	5,429.819	5,139.365	2,386.131	2,016.897	49,755.881
1,026.291	109.719	1,105.775	1,012.393	928.337	512.982	9,449.437
884.861	726.564	1,101.715	97.816	1,001.609	487.355	8,778.516
1,911.152	836.283	2,207.490	1,110.149	1,929.946	1,000.337	18,227.953
4,878.560	3,080.186	7,637.309	6,249.514	4,316.077	3,017.234	67,983.834
163.631	156.400	216.551	273.296	300.631	198.405	2,455.580
119.830	43.824	162.187	466.393	305.094	316.369	2,272.345
283.461	200.224	378.738	739.789	605.725	514.774	4,727.925
313.533	298.871	357.272	326.792	301.029	226.393	5,230.011
263.855	235.413	286.001	277.345	289.320	141.610	3,384.634
577.388	534.284	643.273	604.135	590.349	368.003	8,614.645
846.849	734.508	1,022.011	1,343.926	1,196.074	882.777	13,342.570

TABLE No. 7

PERCENTAGE OF PRINCIPAL ITEMS OF IMPORTS AND EXPORTS FROM BOMBAY AIRPORT (1979-80)

	Percentage of Total
Principal Items of Exports—	
(*a*) Perishables	44.69%
(*b*) Garments	36.10%
(*c*) Leather	5.37%
(*d*) Machinery	2.63%
(*e*) Miscellaneous	11.21%
Major Items of Imports—	
(*a*) Machinery	39.88%
(*b*) Medicines	14.68%
(*c*) Electricals	8.48%
(*d*) Miscellaneous	36.96%

A number of International airlines are operating through Bombay, the list of which is given below:

(1) Alitalia, (2) B.O.A.C., (3) Trans World Airlines, (4) Sabana Belgian Airlines, (5) Air India, (6) Air France, (7) Garuda Indonesian Airlines, (8) East African Airlines, (9) United Arab Airlines, (10) Iran National Airlines, (11) Kuwait Airways, (12) Swiss Air, (13) Czechoslovak Airlines, (14) B.A.S.C.O., (15) Air Ceylon, (16) Middle East Airlines, (17) Transmeridian Airlines, (18) Saudi Arab Airlines, (19) Pan America and (20) K. L. M. Besides, the Indian Airlines operates domestic airline services.

The total passengers traffic (both international and domestic) carried from Bombay was as follows:—

Passenger traffic from Bombay:—

Year	Passenger traffic
1960	1,98,025
1965	3,71,316
1969	6,74,884
1973-74	22,62,377

Goods traffic handled from Bombay:—

Year	Goods traffic (in kg)
1960	36,77,261
1965	54,07,011
1969	96,19,600
1973-74	3,87,49,000

Mails handled from Bombay:—

Year	Mails carried (in kg)
1960	14,52,952
1965	25,89,278
1969	34,64,700
1973-74	65,64,000

The following statement shows the statistics of aircraft movements, passengers, cargo handled and mail at Bombay Airport during 1973-74:—

Particulars	Number
(1) *Aircraft Movement* :—	
(*a*) International—	
(*i*) Scheduled	15,507
(*ii*) Non-Scheduled	1,181
(*b*) Domestic—	
(*i*) Scheduled	16,613
(*ii*) Non-Scheduled	4,027
(2) *Passengers* :—	
(*a*) International—	
(*i*) Disembarked	3,43,496
(*ii*) Embarked	3,45,622
(*iii*) Transit	4,01,939
(*b*) Domestic—	
(*i*) Disembarked	5,57,536
(*ii*) Embarked	6,13,784
(3) *Cargo Handled* (in tons) :—	
(*i*) International	29,221
(*ii*) Domestic	9,528
(4) *Mails Handled* (in tons) :—	
(*a*) International—	
(*i*) Disembarked	1,566
(*ii*) Embarked	853
(*b*) Domestic—	
(*i*) Disembarked	1,787
(*ii*) Embarked	2,358

ROADS

History :—During the time of the Shilaharas there were no roads except some footsteps in a cluster of islands of Bombay. S. M. Edwardes in his "*Rise of Bombay*" gives an interesting account of the old routes in the city which is summarised below.

Before the Portuguese landed at Bombay (at Mahim *en-route* to Diu in January 1509), it was a cluster of seven islands, *viz.*, Mahim, Parel, Worli, Mazagaon, Bombay (Walkeshwar and Girgaum), old Woman's Island (Lower Colaba) and Colaba. In 1532, the Portuguese seized the city of Bassein (Vasai), and in 1534 Bassein and Bombay Island were ceded to the king of Portugal. In 1661 the Island and the port of Bombay weer generously ceded to the British Crown as a dowry to Prince Charles II of Great Britain from the Princess Infanta Catherine of Portugal, and during 1668 it came under the rule of the East India Company.

As early as 1668, an exodus of weavers from Chaul had necessitated the opening of a street, stretching from the Custom House (North-West of the Mint) to the fort.

According to Mr. Grose, in 1750, there were groves with shaded roads and pathways, thickets with houses, but wanting in air, and as the displacement of the people progressed, new roads and burial grounds were opened. During the 17th century land was taken for a public road from Parel to Sion.

The English first connected the cluster of islands to each other. The idea of reclaiming submerged ground dates from a very early period, for in the middle of the sixteenth century a Portuguese financier advised the King of Portugal to substitute for the grant of villages to deserving individuals the allotment of submerged lands in perpetuity, to those who drained and reclaimed them, while after the transfer of the island from the British Crown to the East India Company, the Court of Directors ordered their representatives at Bombay to encourage to stop breaches where the sea overflowed the island. Nevertheless, with the exception of small patches of reclamation here and there, no serious attempt to check the inroads of the sea was made for about a century after Bombay became a British possession.

The first work of magnitude designed to meet this object was the construction of the vellard between Mahalaxmi and Worli, present Haji Ali Causeway, during the governorship of Mr. William Hornby. Upto the seventies of the eighteenth century some attempt was made to resist the encroachment of the sea. The dam in between the area of Mahalaxmi and Worli was scarcely stout enough to wholly check the wanton inrush of the sea waves. So during the governorship of William Hornby, the great vellard was built, which rendered available for cultivation and settlement the vide stretch of the land, and resulted in the welding of the eastern and western shores of the island with one united area. Mr. Grose who visited the island in 1772 points out that prior to the building of the vellard " the sea had so gained upon the land with its irruption that it almost divided the island in two and made the roads impassable." After the construction of the vellard the development of the island of Bombay and the system of roads began in the true sense.

During the subsequent period a vellard between Cooperage and Colaba was constructed. The Railway Committee proposed to reclaim land between Wadi Bunder and Chinch Bunder. The Government reclaimed the area of Apollo Bunder, Mody Bay, Elphinstone, Mazgaon, Tank Bunder and Frere reclamation. The adjoining area of the B.B. & C.I. and the G.I.P. railways were reclaimed by the railway authorities. The areas within which reclamation was carried out by the Bombay Port Trust since 1873 were the Sewri Bunder, Frere Estate, Tank Bunder, Mazgaon Estate, Elphinstone Estate, Mody Bay Estate, Customs

Bunder, Wellington Bunder, Apollo Bunder, Apollo Reclamation, Colaba Bunders, etc.

An interesting account of roads during the 19th century and the beginning of this century is reproduced below from the *Gazetteer of Bombay City and Island*, Vol. I, pp. 361-64, published in 1909:

" The roads and streets of Bombay at the commencement of the 19th century were for the most part extremely narrow and were constantly being encroached upon by house-owners. This led in 1806 to the issue of a Government order in which the Governor-in-Council directed that Parel road and Breach Candy road (Girgaum road) should be gradually widened to sixty feet, Sheikh Memon and Dongri streets to forty feet and all other public streets to 30 feet. All roads branching off the Parel and Breach Candy roads were to be forty feet wide and all cross streets were to be not less than twenty feet wide.[1] This order was followed six years later by Rule, Ordinance and Regulation III of 1812, which pointed out that the roads throughout the island and the streets, lanes and passages within the Fort were " extremely narrow and incommodious for carriages and passengers, " and ordered (Article I) that " the main street through the bazaar should be enlarged to the breadth of 40 feet from house to house; Mody's street should be enlarged to the breadth of 35 feet; Bora's street shall be enlarged to the breadth of 25 feet; and all cross streets within the Fort should be of the breadth of 16 feet."[2] Article II laid down that all the streets comprised in the area of the great fire of 1803 should be 60 feet wide; while Article III enacted that " the great roads through the island, commonly called the Parel road and Breach Candy road respectively, shall be enlarged to the breadth of 60 feet each, and that the roads or streets commonly called Sheikh Memon and Dungaree shall be in like manner enlarged to the breadth of 40 feet each, and that all other principal streets without the walls of the Fort and within the island of Bombay be made of the breadth of 30 feet; that all roads branching from either of the greater roads aforesaid be made of the breadth of 40 feet, and all lanes, cross streets and passages, now hereafter to be made without the said walls, be of the breadth of 20 feet clear from house to house, and not less."[3]

" These orders were apparently productive of good; for Major-General Sir John Malcolm writing of Bombay between 1827 and 1830 remarked that admirable roads had been formed throughout the island of Bombay,

[1] *Bombay Courier*, 24th October, 1807.

[2] Bombay Regulations, 1799-1816, pp. 344-352.

[3] In 1808 a special officer styled Surveyor of Roads was appointed. Before this, the office was combined with that of the Superintendent of Police, and Government paid part of the expenses of the repairs of roads. In 1809 Government advanced the Board Rs. 12,000 for repairs of road.

the streets of the native town had been widened and a communication by a causeway with Salsette much increased in width. He further referred to "an excellent road made to Malabar Point, the temporary bungalows at which have been made permanent, so as to afford excellent accommodation for the Governor."[1] Another new road constructed about this date was one to Sewri, which was much frequented as a country drive[2]. The main thoroughfares were also kept in good condition and were described in 1832 as "beautifully macadamized"[3] and in 1838 as "watered, tolerably lighted, clean, and void of all offence."[4] On the 1st October 1839, "Grant road" from the obelisk to the garden-house of Jagannath Shankar Sett at Girgaum" was thrown open to the public, and was described as requiring a parapet-wall on either side owing to its great elevation above the adjoining lands.[5] As the population increased and the town expanded the public view regarding the suitability of the island's communications underwent alteration. The streets in the native town were described in 1845 as "very narrow"[6] and the road along the line of the present Rampart and Hornby roads, which was regarded in 1850 as a fashionable thoroughfare, would rank in these days as "little better than a narrow lane."[7] The decade 1860 to 1870 marks the point at which the broad modern thoroughfares of the island were planned and commenced. An "eastern boulevard" from Elphinstone Circle to Bazaar Gate and a Foras road from the Victoria Gardens to Mahalakshmi were completed in 1868; Apollo street was widened and a hundred-foot road from Bazaar Gate to the native town was commenced in the same year; a new road from Babula Tank to the Elphinstone overbridge, the Bellasis road, Gilder street and several other well known thoroughfares were completed about the same date. In all some 35 big roads were either newly constructed or converted from old narrow tracks during the period 1860-70, and many of these were 80 feet in width and were provided with broad footpaths bordered with trees.[8] Ripon road, Fergusson road and a widened Girgaum road were under construction in 1884-85.

"In 1887, the total mileage of the roads in-charge of the Municipality was 136½ miles, which rose to 147¾ miles in 1897 and is now (1907)

[1] *The Government of India* by Malcolm, 1833. The construction of a road to Malabar Point enabled the Governor to make over his old residence in the Fort, which had not been regularly used for many years, to the Secretaries to Government.

[2] *Bombay Courier*, 12th March 1825.

[3] Hall's *Voyages*, p. 7.

[4] Postans' *Western India*, p. 75, I.

[5] *Bombay Times*, October 19th, 1839.

[6] Von Orlich's *Travels*, I.

[7] *Times of India*, 26th October 1901.

[8] A complete list of these roads is given in "*Maclean's Guide to Bombay*" (revised to 1900), pp. 206, 207.

156¾ miles. Since the establishment in 1898 of the City Improvement Trust, one of the duties of which is to open new roads through thickly populated areas, Municipal activities have fallen somewhat into abeyance as regards schemes for new thoroughfares. A few minor road schemes, such as those in Colaba village, Chandanwadi, Cavel, Hamalwadi, Piru lane, etc., have been put into execution, and a certain amount of road-widening and road-improvement has been completed out of funds provided by the Corporation. Two of the most useful roads recently constructed are Princess street and Sandhurst road which afford direct communication from east to west. Hughes road has proved a boon to the residents of Malabar and Cumballa hills."

Table No. 8 gives particulars of the chief bridges as they existed at the beginning of this century.[1]

Most of the big roads were either constructed newly or converted from old narrow tracks during the first few years of the 20th century. A remarkable development in roads took place after Independence. During 1887 the total mileage of the roads of Bombay island within the jurisdiction of the municipality was 136½ miles, which rose to 156¾ miles during 1907 and 301¼ miles during 1947. In 1898, the City Improvement Trust was established, one of the duties of which was to open new roads through densely populated areas. The total mileage of roads of Bombay City, Suburbs and the Extended Suburbs measured to 1419.90 km. in 1982, the details of which are shown below:—

City/Suburbs	Length (in km.)			
	Cement concrete	Black-topped	Others	Total
(1) Bombay City ..	78.66	411.63	....	490.29
(2) Bombay Suburbs and Extended Suburbs.	114.09	783.02	32.50	929.61
Total ..	192.75	1,194.65	32.50	1,419.90

The following is the account of a few important road routes in Greater Bombay:[2]

Nariman Point to Walkeshwar (Malabar Point) : This route is divided into two sections, *viz.* (1) Nariman Point to Girgaum Chaupati, and (2) Chaupati to Walkeshwar. The first section known as the Marine Drive was renamed as the Netaji Subhash marg, while the

[1] *The Gazetteer of Bombay City and Island*, published in 1909, Vol. I, pp. 506-09.

[2] The years of construction of some important roads are given in Chapter 2.

TABLE

IMPORTANT BRIDGES WITHIN THE CITY OF

Serial No.	Name of Bridge	Named after	Nature of Construction	Purpose for which constructed	Length	
1	Frere Bridge ..	Sir Bartle Frere	Iron and Masonry	Carries Grant Road over B.B. and C.I. Railway[1].	East 584′–10″	West 476′–3″
2	Kennedy Bridge	Sir M. Kennedy	Do.	Carries Girgaum Back Road over B.B. and C. I. Railway.	North 439′-5″	South 405′–1″
3	Bellasis Bridge ..	Maj-Genl. Bellasis	Do.	Carries Bellasis Road over B.B. and C.I. Railway.	East 654′-3″	West 614′-9″
4	Wodehouse Bridge	Sir Philip Wodehouse	Do.	Carries Wodehouse Road over B.B. and C. I. Railway.	East 695′	South 767′

[1] Now known as Western Railway.

No. 8

BOMBAY (AT THE BEGINNING OF 20TH CENTURY)

Width of road way	No. of Spans	Width of Spans	Gradient		Foot-path	Tramway	Ward	Inscription
			East	West				
45	9	12′-6″ × 13′-9″ 12′-9″ × 17′-8″ 28′-8″ × 17′-8″ 13′-9″ × 13′-9″ × 12′-6″	I in 32	I in 28	Nil	No Tram line	D	Bombay, Baroda and Central India Railway, His Excellency the Hon'ble Sir Henry Bartle Edward Frere K.C.B., Governor of Bombay. ERECTED A. D. 1866 (The same inscription in Marathi and Gujarathi).
29′-6″	3	10′ × 28′-1″ × 9′-8″	South I in 37	N.W. I in 29	Nil	Do.	D	Bombay, Baroda and Central India Railway ERECTED A. D. 1866 (The same inscription in Marathi and Gujarathi.)
33′-0″	1	28′	I in 34	I in 33	Nil	Do.	D & E	The Bellasis Road was made A.D. 1795 by the Poor, driven from the city of Surat in that year, of famine, out of funds raised by public subscription and takes its name from Major General Bellasis under whose orders it was constructed.
50′-0″	3	20′ × 38′.6″ × 20″	N.E. I in 38	S.W. I in 41	7′-0″ on either side the road	Do.	A	Bombay, Baroda and Central India Railway, Wodehouse Bridge. ERECTED 1875. His Excellency the Right Hon'ble Sir Philip Wodehouse G.C. S.I., K.C.B., Governor of Bombay (with corresponding translation in Marathi).

TABLE

Serial No.	Name of Bridge	Named after	Nature of Construction	Purposes for which constructed	Length	
5	Carnac Bridge	Sir J. R. Carnac	Iron and Masonry	Carries Carnac Road over G.I.P. Railway	East 542′	West 352′
6	Elphinstone Bridge	Mr. Mountstuart Elphinstone	Do.	Carries Chinch Bunder Road over G.I.P. Railway.	East 612′	West 63′-6″
7	Byculla Bridge ..	From being situated near the Byculla Rly. Station.	Do.	Carries Parel Road over G.I.P. Railway	North 693′	South 600′
8	Ollivant Bridge	Sir Charles Ollivant	Do.	Carries Nesbit Lane over G.I.P. Railway.	East 620′	West 565′
9	French Bridge* ..	.....	Do.	Carries French Road over B.B. and C.I. Railway.	East 322′-8″	West 390′
10	Masjid Bridge ..	From being situated near a Masjid.	Masonry	Carries Dongri Street over G.I.P. Railway.	East 457′	West 192′
11	Hancock Bridge	Col. Hancock	Iron and Masonry	Carries Mazgaon Road over G.I.P. Railway.	North 241′	South 298′
12	Falkland Bridge	Lord Falkland	Do.	Carries Falkland Road over B.B. and C.I. Railway.	East 582′	West 753′
13	Gibbs Road Bridge	The Hon. Mr. Gibbs.	Masonry	Carries Gibbs Road over two passages one for conveyance of the Parsi dead and the other for water main.	182′	..

*A new bridge was subsequently built near the French Bridge in connection with the Sandhurst road.

No. 8—*contd.*

Width of road way	No. of Spans	Width of Spans	Gradient East	Gradient West	Footpath	Tramway	Ward	Inscription
60′-0″	1	32′	I in 31	I in 50	7′-0″ on both sides	Double Tram line.	A	Carnac Bridge 1868. For Public Traffic.
50′-0″	3	52′-5″ × 16′-6″ × 12′-3″	I in 30	..	10′ on both sides	No Tram-line	B	1868.
60′-0″	1	59″	I in 40	I in 40	7′ on both sides.	Double Tram line.	E	G.I.P. Railway, Byculla Bridge, 1885. Contractors Messrs Narsoo Syboo and Co.
40′-0″	1	51′	I in 35	I in 35	Nil	No Tram line	E	Ollivant Bridge 1887. Cost Rs. 2,15,000. Constructed by G.I.P. Railway at the cost of the Municipality.
30′-2″	3	9′ × 28′-1″ × 9′	I in 28	I in 27	Nil	Do.	D	Bombay, Baroda and Central India Railway. ERECTED A.D 1886. (The same inscription in Marathi and Gujarathi.)
60′-0″	3	52′-5″ x 25′ x 8′	I in 30	I in 30	12′ on both sides.	Do.	B	....
50′-0″	2	52′ × 52′	N. Side I in 29	S. Side I. in 28	Nil	Double Tram line	B	....
35′-0″	1	56′-6″	I in 26	I in 33	5′ on both sides.	No Tram line	D & E	....
30′-3″	..	..	..	..	4′-9″ on one side.	Do.	D	....

second was famous as Chaupati road, now renamed as Dr. Purandare marg. The section from Chaupati to Walkeshwar bears the name of Walkeshwar road. This route is famous for its scenic view, the beautiful sky-scrapers to the east and the unfathomable Arabian sea to the west. At the midst of this road *i.e.* at the Fly-over bridge off the Princess street near Marine Lines Railway station it appears like a bow[1], and exhibits the magnificence of its design. This road is also one of the famous places of interest in Bombay. The alluring view of sun-set to the west of this road and the beautiful view of lighted running cars at night on this road is a pleasure to the wayfarers.

It starts from the Backbay reclamation area of Nariman Point at the junction of Madame Cama road where many sky-scrapers such as the Air India building, the Hotel Oberoi building, the Nirmal building, the Express Tower building, the Mafatlal Group building and others have come up. The total length of this route is about 4.5 km. with a width surface of 140 feet from Nariman Point to Chaupati and of 120 feet from Chaupati to Walkeshwar.

The objects located on the east of this road are : Hotel Bombay International, Brabourne Stadium, Iran Airlines, Hotel Natraj, University Ground, Wankhede Stadium, Princess Street Fly-over Bridge, Parsi Gymkhana, Islam Gymkhana, Hindu Gymkhana, Wilson College Gymkhana, Grant Medical College Gymkhana, Taraporewalla Aquarium, Smt. Kamaladevi Gauridatta Mittal Ayurvedic Hospital, Mahatma Gandhi Memorial Building, Savitribai Phule Govt. Ladies Hostel, Government Printing Press and Book Depot, Women's Garden and Wilson College; while on the west side of this road are : the Swimming Tank, the Birla Krida Kendra and the Girgaum Chaupati.

The following important roads take off from it : (1) Madame Cama road, (2) Dinshaw Vachha road, (3) Veer Nariman road, (4) Princess Street Fly-over, (5) Sardar Vallabhbhai Patel road, (6) Pandita Ramabai road, (7) Babulnath road and (8) Walkeshwar road.

Further, this road is extended upto Walkeshwar Point, the extended portions being known as the Walkeshwar road and the Upper Walkeshwar road. At the ending point Raj Bhavan or the Governor's bungalow is located. Many sky-scrapers, the Malabar Hills, the Hanging Garden, the Kamala Nehru Park, etc., are located in its vicinity. The important road emanating from Walkeshwar road is the B.G. Kher marg.

Cooperage (*Lower Colaba*) *to Mahim Causeway* : This route can be divided into eight sections *viz.*, (1) Maharshi Karve marg from Cooperage to Charni Road railway station, (2) Mama Parmanand marg from Charni Road railway station to Opera House (Paluskar Chauk), (3) Paluskar Chauk to Nyayamurti Sitaram Patkar marg junction point (*i.e.*, the portion of Sardar Vallabhbhai Patel road), (4) Nyayamurti

[1] It is known as the Queen's Necklace.

Sitaram Patkar marg upto Kemp's Fly-over bridge, (5) Gopalrao Deshmukh marg upto V. Desai Chauk (Haji Ali Chauk), (6) Lala Lajpatrai marg upto Nahru Planetarium, (7) Dr. Annie Besant road upto Century Bazar junction, and (8) Veer Savarkar road upto Mahim Causeway. This route starts from Cooperage *i.e.*, from the Lower Colaba and traverses Fort (south), Esplanade, Dhobi Talao, Fanaswadi, Girgaum (west), Malabar Hill (east), Cumballa Hill, Mahalaxmi, Lovegrove, Worli, Prabhadevi and Mahim. The total length of this route is about 15 km. Many long route buses emanating from the western suburbs of Greater Bombay and terminating at South Bombay ply on this route. The route is famous for its speedy motor-car traffic. It has not only relieved the heavy burden on many important roads in the south-eastern part of city but also facilitated very speedy car-traffic between south Bombay and the middle Bombay as well as the north-western suburbs of Greater Bombay. Many office-premises and the old glorious buildings are located in the vicinity of the southern sections of this route, while many skyscrapers are erected in the vicinity of its middle sections, *i.e.*, the Gopalrao Deshmukh marg where many wealthy persons, top officers, and the elite reside.

The following important roads either take off from it or are crossed by it : (1) Madame Cama road, (2) Dinshaw Vachha road, (3) Veer Nariman road, (4) Princess street (Samaldas Gandhi marg), (5) Anandilal Podar road, (6) Dr. Babasaheb Jaykar road, (7) Raja Ram Mohan Roy marg, (8) Sardar Vallabhbhai Patel road, (9) Jagannath Shankarshet road, (10) Babulnath road, (11) August Kranti marg, (12) Bhulabhai Desai road, (13) Madan Mohan Malaviya marg, (14) Keshavrao Khade marg, (15) Maulana Abdul Gafar Khan road, (16) Dr. E. Moses road, (17) Worli road No. 13, (18) Worli road No. 10, (19) Pandurang Budhkar marg, (20) Keluskar road, (21) Shivaji Park roads, (22) Lady Hardinge road, (23) Sitaladevi Temple road, and (24) Lady Jamshetji road.

The following important objects are located along either side of this route : (1) Cooperage, (2) Mantralaya, (3) Oval *Maidan*, (4) K. C. College, (5) Eros Theatre, (6) Western Railway Headquarters, (7) Churchgate railway station, (8) India Government Tourist office, (9) Central Excise department, (10) Smt. Nathibai Damodar Thackersey University and College, (11) Income Tax department, (12) Accountant General office, (13) Bombay Hospital, (14) Princess Street Fly-over bridge, (15) Marine Lines railway station, (16) Mullanathbhai Cemetery, (17) S. K. Patil Garden, (18) Byramjee Jeejeebhoy Institution, (19) Saify Hospital, (20) Charni Road railway station, (21) Roxy Cinema, (22) Akruti (25 fl.) building, (23) Opera House, (24) Babulnath Temple, (25) Kamala Nehru Park (east side), (26) Kemp's Fly-over bridge, (27) Woodlands building (24 fl.), (28) Sterling Apartments (20 fl. building), (29) Jaslok Hospital, (30) Mahalaxmi Temple, (31) Heera Panna (24 fl.)

building, (32) Haji Ali Dargah, (33) Children's Orthopaedic Hospital, (34) Lala Lajpatrai College, (35) Race Course, (36) National Sports Club, (37) Sardar Vallabhbhai Patel Stadium, (38) Nehru Planetarium, (39) Tata Show Room, (40) Sandoz buildings, (41) Happy Home and School for the blind, (42) Podar Ayurvedic Hospital and College, (43) Bombay Television Centre and TV Tower, (44) Glaxo Laboratories, (45) Dunlop House, (46) Century Bazar, (47) Siddhivinayak Temple, (48) Ravindra Natya Mandir, (49) Catering College, (50) Kirti College, (51) Shivaji Park, (52) Dadar Chaupati, (53) Bombay Mayor's bungalow, (54) Bombay Scouts' Gymkhana, (55) Vanita Samaj Hall and (56) Mahim Fort.

Colaba to Maheshwari Udyan : This route is the most heavy traffic route in Bombay which runs along the eastern harbour *i.e.*, the Bombay Port. The loaded heavy trucks and vehicles carrying goods to and from the Bombay Port ply over this route. It can be divided into six sections *viz.*, (1) Colaba road (6,400 ft.) from Afghan Church to Sassoon Dock, (2) Shahid Bhagatsingh marg (10,800 ft.) from Sassoon Dock to G.P.O., (3) P. De'Mellow road (9,600 ft.) from G.P.O. to Wadi Bunder, (4) Reay Road (8,500 ft.) from Wadi Bunder to Jakaria Bunder road junction, (5) Jakaria Bunder road (6,880 ft.) from Reay Road junction to Golanji Hill road junction (Sewri Church), and (6) Rafi Ahmad Kidwai marg (11,600 ft.) from Sewri to Maheshwari Udyan (King's Circle). The total length of this route is about 16.20 km. The last section *i.e.*, the Rafi Ahmad Kidwai marg has an Express highway standard surface.

It traverses through Colaba, Fort, Esplanade, Mandvi, Dongri, Mazgaon, Sewri, Naigaum and Matunga.

The following important roads either take off from it or are crossed by it : (1) Dumyne road, (2) Shivaji Maharaj marg, (3) Mahatma Gandhi road, (4) Veer Nariman road, (5) Shoorji Vallabhadas marg, (6) Sir Pherozeshah Mehta road, (7) Mint road, (8) Walchand Hirachand marg, (9) Lokmanya Tilak road, (10) Masjid siding road, (11) Sardar Vallabhbhai Patel road, (12) Zinabai Rathod marg, (13) Dockyard road, (14) Sant Savta marg, (15) Messent road (Cotton Avenue), (16) Jerabai Wadia road, (17) Dattaram Lad marg, (18) Road No. 26, (19) Road No. 18, and (20) Road No. 16 etc.

The following important objects are located along either side of the route : (1) R. C. Church, (2) Afghan Church, (3) Sassoon Dock, (4) Defence Services Cinema, (5) Regal Theatre, (6) Museum, (7) Hotel Celeste, (8) Astoria Hotel, (9) Colaba Village, (10) Colaba BEST bus depot, (11) Old Council hall, (12) Electric House, (13) Lion Gate, (14) Jehangir Art Gallery, (15) Old Custom House, (16) Horniman Circle, (17) Town hall and Red Cross Society, (18) Reserve Bank of India, (19) Fort market, (20) General Post Office, (21) Saint George's Hospital, (22) Hotel Regal, (23) Warehouses and sheds of Indira Dock, (24) B.P.T. Railway—General

goods station (Indira Dock), (25) Carnac Bunder goods station, (26) Rex Cinema, (27) Red Gate, (28) Warehouses and sheds of Victoria and Prince's docks, (29) Merewether Dry Dock, (30) Wadi Bunder goods yards, (31) Dockyard Road railway station, (32) Reay Road railway station, (33) Victoria Fly-over bridge near Reay Road railway station, (34) I.C.L., (35) Cotton Green railway station, (36) Sewri railway station, (37) T.B. Hospital, (38) Wadala railway station, (39) Five Gardens and (40) Aurora Cinema.

Museum to Sion : This route can be divided into seven sections *viz.*, (1) Mahatma Gandhi road from Museum to Hutatma Chauk, (2) Dr. Dadabhai Naoroji road and Palton road upto Lokmanya Tilak road junction, (3) Mohammad Ali road from Lokmanya Tilak road junction to Ibrahim Rahimtulla road junction, (4) Ibrahim Rahimtulla road upto junction of Sir Jamshetjee Jeejeebhoy road, (5) Sir Jamshetjee Jeejeebhoy road upto Byculla bridge, (6) Dr. Babasaheb Ambedkar marg upto Maheshwari Udyan and (7) Sion road upto Sion railway station.

Many statuesque buildings and places of interest in Bombay are located at the southern sections of this route. Generally, old buildings, banks, private and Government offices, well esteemed colleges and the University are located at the south *i.e.*, from Museum to Mahatma Phule Market (Crawford Market), while the route traverses through the most bustling business area of Bombay from Crawford Market (Mahatma Phule Market) to Byculla where fruits, vegetables, stationery, cutlery, clothes, hosiery, engineering goods, etc., are traded on wholesale basis. From Byculla to Sion it traverses through the residential areas. Few textile mills are also located in this area.

This route traverses through Fort, Esplanade, Mandvi, Bhendi Bazar, Nagpada, Tadwadi, Byculla, Parel, Naigaum, Dadar, Matunga, and Sion. The total length of this route is about 14 km.

The following important roads which either take off from it or are crossed by it : (1) Madame Cama road, (2) Shivaji Maharaj marg, (3) Shahid Bhagatsingh road, (4) Veer Nariman road, (5) Mahatma Gandhi road, (6) Walchand Hirachand marg, (7) Hazarimal Somani marg, (8) Lokmanya Tilak road, (9) Yusuf Meher Ali road, (10) Ibrahim M. Merchant road, (11) Ibrahim Rahimtulla road (the section from Mohammed Ali road junction to Kalbadevi road junction), (12) Sardar Vallabhbhai Patel road, (13) Erskine road, (14) Maulana Shaukat Ali road, (15) Ramchandra Bhat marg, (16) Dimtimkar road, (17) New Nagpada road, (18) Shepherd road, (19) Sardar Balwantsingh Dhodi marg, (20) Mirza Galib road, (21) Dr. S. S. Rao road, (22) Sant Savta marg, (23) E. S. Patanwala marg, (24) Sane Guruji path, (25) Mahadeo Palav marg, (26) Acharya Donde marg, (27) Jagannathrao Bhatankar marg, (28) Wadia road, (29) Dadasaheb Phalke road, (30) S. Gyani Jivandas marg,

(31) Mumbai Marathi Grantha Sangrahalaya marg, (32) Tilak road, (33) Lady Jehangir road, (34) Horsmusji Adenwalla road, (35) Bhandarkar road, (36) Bhau Daji marg, (37) Matunga road, and (38) Eastern Express highway.

The following important objects are located along either side of this route : (1) Lion Gate, (2) Museum, (3) Jehangir Art Gallery, (4) Old Council Hall, (5) Cowasji Jehangir Hall, (6) Elphinstone College, (7) Institute of Science, (8) Regal Cinema, (9) University of Bombay, (10) British Consulate, (11) New India Assurance building, (12) Flora Fountain (13) Davar's College, (14) Central Telegraph Office, (15) Parsi Fire temple, (16) Siddharth College of Commerce and Economics (Anand Bhawan), (17) Bai Pisobai Dadabhai Vachha Fire Temple, (18) Khadi and Village Industries Emporium, (19) Handloom House, (20) Empire Hindu Hotel, (21) Capital Cinema, (22) V. T. Station and Central Railway Headquarters, (23) Bombay Municipal Corporation building, (24) Times of India building, (25) Anjuman-I-Islam high school, (26) Sir J. J. Institute of Applied Arts, (27) Police Commissioner's office, (28) Chhatrapati Shivaji market, (29) Mahatma Phule market (Crawford market), (30) Manish market, (31) Mohta market, (32) Mandvi Telephone Exchange, (33) Zakaria mosque, (34) Minara mosque, (35) J .J. Hospital, (36) Dick's Garden, (37) Magen David Synagogue, (38) Sant Gadge Maharaj *dharmashala,* (39) Traffic Institute, (40) Sewa Niketan, (41) Bombay Fire Brigade, (42) Sant Gadge Maharaj market (Gold Mohur market), (43) Mahadev Temple, (44) Palace Cinema, (45) Sant Savta market, (46) Gloria Church, (47) Bai Jeejeebai *baug*, (48) Central Railway Hospital, (49) Parsi Agiary, (50) Veermata Jeejabai Bhosale Udyan (Victoria garden), (51) Signal and Telecommunication workshop, (52) New Great Eastern Spinning and Weaving Mills, (53) Jai Hind Cinema, (54) Voltas Ltd., (55) Godfrey Phillips Ltd., (56) Digvijay Mills, (57) Bharatmata Cinema, (58) Morarji Mills, (59) India United Mills No. 1, (60) I. T. C. Ltd., (61) Central Railway playground, (62) Central Railway's Loco Workshop, (63) Tata Memorial Cancer Hospital, (64) Dharati talkies, (65) Hindmata talkies, (66) Chitra talkies, (67) Naigaum telephone exchange, (68) Mumbai Marathi Grantha Sangrahalaya, (69) Sharada talkies, (70) Kohinoor Mills, (71) Dadar BEST workshop, (72) Ruia College, (73) Datta Mandir, (74) Sahastrafana Parshwanath Bhagavan Jain Mandir, (75) Aurora Cinema, (76) Matunga telephone exchange, (77) Mahatma Gandhi cloth market, (78) King's Circle railway station, (79) Lokmanya Tilak Hospital, (80) Roopam talkies and (81) Sion Bus Depot.

Cooperage (*Lower Colaba*) *to Haji Ali* : This route can be divided into four sections *viz.*, (1) Karmaveer Bhaurao Patil marg from Cooperage to Cross Maidan, (2) Mahatma Gandhi road (a section of Mahatma Gandhi road from Cross Maidan to Vasudeo Balwant Chauk

(Dhobi Talao), (3) Jagannath Shankarshet marg from Dhobi Talao to Nana Chauk, and (4) Javji Dadaji marg (Nana Chauk) to V. Desai Chauk (Haji Ali junction). The total length of this route is about 6.5 km. It traverses through Fort (South), Esplanade, Dhobi Talao, Fanaswadi, Girgaum, Tardeo and Mahalaxmi. This route crosses the Western Railway between Charni Road and Grant Road railway stations *i.e.* between Opera House and Nana Chauk where there is a bridge across the railway known as the Kennedy bridge.

The following important roads either take off from it or are crossed by it : (1) Madame Cama road, (2) Veer Nariman road, (3) Hajarimal Somani marg, (4) Anandilal Podar marg (Marine Lines—first street), (5) Kalbadevi road, (6) Lokmanya Tilak road, (7) Mahapalika marg, (8) Samaldas Gandhi marg, (9) Sonapur street, (10) Dr. Viegas street, (11) Dady Shet Agiary street, (12) Dr. Babasaheb Jayakar marg, (13) T. Gharpure path, (14) Khadilkar road, (15) Raja Ram Mohan Roy marg, (16) Dr. Dadasaheb Bhadkamkar marg, (17) Mama Parmanand marg, (18) Sardar Vallabhbhai Patel road, (19) French road, (20) Vitthalbhai Patel road, (21) Gamdevi road, (22) Maulana Shaukat Ali road, (23) August Kranti marg, (24) Falkland road, (25) N. Bharucha marg, and (26) Jehangir Boman Behram marg.

The following important objects are located on either side of this road :

(1) Cooperage, (2) Oval *Maidan*, (3) Rajabai Tower and Bombay University, (4) High Court, (5) Cross *Maidan*, (6) O.C.S. Tower, (7) Azad *Maidan*, (8) Bombay Gymkhana, (9) Prabhu Seminary high school, (10) Gora Ram temple, (11) Kala Ram temple, (12) Vishnu temple, (13) Portuguese Church, (14) Bhatia Hospital, (15) Ganga and Jamuna talkies, (16) Maruti temple, (17) Tardeo bus station, (18) Famous Cine Laboratory, (19) Air-conditioned market and (20) Commerce Centre.

Walkeshwar to Haji Ali : This route is divided into two sections, *viz.*, (1) Lady Laxmibai Jagmohandas marg and (2) Bhulabhai Desai road. It starts from the Walkeshwar temple, and runs towards the north and traverses through Walkeshwar and Mahalaxmi area for a total length of 3.2 km. Many sky-scrapers are located on either side of this road. The August Kranti marg emanates from this road near Kemp's Corner, while the Gopalrao Deshmukh marg meets this road near Mahalaxmi temple.

The following important objects are located on the either side of this route: (1) Walkeshwar temple, (2) Hanging garden, (3) Tower of Silence, (4) Kemp's Corner, (5) Bhulabhai Desai Memorial Institute, (6) Breach Candy Hospital and (7) Mahalaxmi temple.

Opera House to Chinchpokli : This route can be divided into three sections *viz.*, (1) Bhadkamkar marg (5,200 feet), (2) Dr. Anandrao Nair

marg, and Arthur road (3,600 feet), and (3) Sane Guruji path (4,400 feet). It traverses through Girgaum, Khetwadi, Tardeo, Byculla and Chinchpokli. The total length of this route is about 4 km. It runs towards the north upto Sant Gadge Maharaj Chauk and then north-east upto Chinchpokli railway station. It crosses the Central Railway line near the Chinchpokli railway station to meet Dr. Babasaheb Ambedkar road.

The following important roads either take off from it or are crossed by it : (1) Sardar Vallabhbhai Patel road, (2) Maulana Shaukat Ali road, (3) Allibhai Premji marg, (4) Annesley road, (5) Falkland road, (6) Guilder road, (7) Bellasis road No. 3, (8) Jehangir Boman Behram road, (9) Club road, (10) Club back road, (11) Gell street, (12) Keshavrao Khade marg, (13) Maulana Azad road, (14) Jagtap marg, (15) N. M. Joshi marg, and (16) Ambedkar marg.

The important objects located on either side on this route are : (1) Opera House, (2) Swastik Talkies, (3) Naaz Cinema, (4) Minerva Cinema, (5) Apsara Cinema, (6) Novelty Cinema, (7) Guilder Tank *Maidan*, (8) Y.M.C.A. Club, (9) Bombay Central railway station, (10) Bombay Central S. T. Station, (11) Maratha Mandir Theatre, (12) Nair Hospital, (13) New Shirin Talkies, (14) Arthur Road Jail, (15) Arthur Road Hospital and (16) Chinchpokli railway station.

Chaupati to Mazgaon (Dongri) : This route, known as the Sardar Vallabhbhai Patel road, emanates from the Chaupati on the Netaji Subhash road and crosses the Western Railway near the Opera House where there is bridge across the railway lines known as the Sandhurst Bridge. It also crosses the Central Railway lines between Masjid and Sandhurst Road railway stations, where there is a bridge known as the Dongri Bridge. It runs in easterly direction for 3414 metres (3.4 km.) and meets the P. De'Mellow road in Mazgaon area. It traverses through Khetwadi, Kumbharvada, Khara Talao, Umarkhadi and Dongri.

The following important roads either take off from it or are crossed by it : (1) Nyayamurti Sitaram Patkar marg, (2) Mathew road, (3) Mama Parmanand marg, (4) Jagannath Shankarshet road, (5) Dr. Dadasaheb Bhadkamkar marg, (6) Vitthalbhai Patel road, (7) Raja Ram Mohan Roy marg, (8) Khetwadi main road, (9) Nanubhai Desai road, (10) Falkland road, (11) Maulana Azad road, (12) Erskine road, (13) Ibrahim Rahimtulla road, (14) Narsinatha street, (15) Jail road, (16) Dr. Keshavji Naik road, (17) Maheshwari road, (18) Argyle road and (19) P. De'Mellow road.

The important objects located on either side of this route are : (1) Opera House, (2) Servants of India Society building, (3) Parekh Hospital, (4) Gol Pitha, (5) Alankar Theatre, (6) Edward Theatre, (7) Gol Deul, (8) Nullbazar market, (9) Bhendi Bazar, (10) Dongri jail and (11) Wadi Bunder goods yard.

Dhobi Talao to Bhendi Bazar : This route popularly known as the Kalbadevi road starts from the Vasudeo Balvant Chauk at Dhobi Talao (near the Metro Cinema) and runs towards the east to meet the Ibrahim Rahimtulla road. The total length of this road is 1341 metres. It traverses through the very busy area having shops of brass and stainless steel utensils, furniture, cloth and cutlery.

The following important roads either take off from it or are crossed by it : (1) Mahatma Gandhi road, (2) Mahapalika marg, (3) Lokmanya Tilak road, (4) Jagannath Shankarshet road, (5) Marine Lines 1st street, (6) Samaldas Gandhi marg, (7) Kantilal Sharma marg, (8) Dr. Velkar street, (9) Babu Genu road, (10) Dhirubhai Parekh road, (11) Sheikh Memon street, (12) Dady Shet Agiary lane, (13) Abdul Rehman street, (14) Bhuleshwar road, (15) Kika street and (16) Ibrahim Rahimtulla road.

The following important objects are located on either side of this road : (1) Jain temple, (2) Dady Shet Agiary, (3) Mumbadevi temple and (4) Kalbadevi temple.

Kemp's Corner to Wadi Bunder : This route can be divided into two sections *viz.*, (1) August Kranti marg and the Maulana Shaukat Ali road and (2) Ramchandra Bhat marg (Babula Tank road), Shivdas Chapsi marg (Mazgaon road) and the Zinabai Rathod marg (Wadi Bunder road). It starts from the Kemp's Corner *i.e.*, the north end of the Hanging Garden at the junction of the Napean Sea road and the Bhulabhai Desai marg and runs towards the east to meet the P. De'Mellow road near Wadi Bunder. It traverses through Gowalia Tank, Nana Chauk, Grant Road, Khetwadi, Nagpada, Bhendi Bazar and Umarkhadi for a length of about 6 km.

The following important roads either take off from it or are crossed by it : (1) Bhulabhai Desai road, (2) Jagmohandas marg, (3) B. G. Kher marg, (4) Pandita Ramabai road, (5) Javji Dadaji road, (6) Jagannath Shankarshet road, (7) Allibhai Premji marg, (8) Dadasaheb Bhadkamkar marg, (9) Balaram street, (10) Raja Ram Mohan Roy marg, (11) Falkland road, (12) Maulana Azad road, (13) Ibrahim Rahimtulla road, (14) Babula Tank cross lane, (15) Umarkhadi Jail road (north), (16) Umarkhadi Jail road (east) and (17) Dr. Mascarenhes road. It crosses the Western Railway lines near Grant Road railway station where there is a bridge across the railway lines known as the Frere Bridge, and the Central Railway lines between the Sandhurst road and Byculla railway stations where there is also a bridge.

The important objects located on either side of this route are : (1) Kemp's Corner, (2) Malabar Hills (Hanging Garden), (3) Tejpal Auditorium, (4) August Kranti *maidan*, (5) Kranti *Stambh*, (6) Grant Road railway station, (7) Maruti *mandir* and (8) J. J. Hospital.

Byculla Bridge to Mahim Causeway : It can be divided into three sections, *viz.*, (1) N. M. Joshi marg (12,800 ft.), (2) Gokhale road (6,640 ft.) and (3) Lady Jamshetji road (6,800 ft.). It starts from Byculla Bridge and runs towards the north upto Mahim Causeway and traverses through Byculla, Chinchpokali, Worli, Dadar and Mahim for about 8 km. It crosses the Western Railway lines near Lower Parel railway station where there is a bridge known as the Lower Parel Bridge.

The following important roads either take off from it or are crossed by it : (1) Jagtap marg, (2) Sane Guruji path, (3) Currey Road railway station road (4) Gopalrao Kadam marg, (5) Senapati Bapat marg, (6) Carrol road, (7) Dadasaheb Bhatankar marg, (8) Sayani road, (9) Kakasaheb Gadgil marg, (10) Bhavanishankar road, (11) S. K. Bole marg, (12) Dnyanmandir marg, (13) Ranade road, (14) Shivaji Park road, (15) N. C. Kelkar road (16) Lady Hardinge road, (17) Sitaladevi Temple road and (18) Veer Savarkar marg.

The important objects located on either side of this route are as follows : (1) Curshetjee Manekjee statue (Khada Parsi), (2) Byculla fire brigade, (3) Khatav Mills, (4) Byculla railway station, (5) Chinchpokli railway station, (6) Currey Road railway station, (7) Lower Parel railway station, (8) Western Railway workshop, (9) Crown Mills, (10) Portuguese Church, (11) Shivaji Park, (12) Kohinoor Mills, (13) Sitaladevi temple, (14) City Light Cinema, (15) Barakha Talkies, (16) Badal Talkies, (17) Bijali Talkies, (18) Shree Talkies, (19) Paradise Theatre, (20) Mount Mary Church, (21) Victoria Church, (22) Ram Mandir, (23) Mahim fort and (24) Mahim BEST bus depot.

Race Course to Mahim Causeway : This road formerly known as the Tulsi Pipe line is now renamed as the Senapati Bapat marg. It starts from Race Course, runs towards the north and traverses through Chinchpokli, Worli, Prabhadevi, Dadar and Mahim. The total length of this road is about 8.5 km.

The following important roads either take off from it or are crossed by it : (1) E. Moses road, (2) Ganapatrao Kadam marg, (3) N. M. Joshi marg, (4) Carrol road, (5) Bhatankar marg, (6) Sayani road, (7) Kakasaheb Gadgil marg, (8) Dadar road, (9) N. C. Kelkar road, (10) Lady Hardinge road, (11) Sitaladevi Temple road, (12) Mori road and (13) Dharavi road.

The following important objects are located on either side of this road : (1) Mahalaxmi Race Course, (2) Famous Cine Laboratory, (3) Globe Mills, (4) Western Railway workshop, (5) Sewage purification plant, (6) Dadar railway station, (7) Tilak Bridge, (8) Ruparel College, (9) Matunga Road railway station, (10) Sitaladevi temple, (11) Mahim railway station and (12) Mahim BEST bus depot.

Eastern Express Highway : To relieve the acute traffic congestion on the Bombay-Thane road, which was the only highway leading to and

from Bombay, it was decided in concurrence with the Government of India and the Bombay Municipal Corporation, to construct two Express Highways, *viz.* (1) the Eastern Express Highway and (2) the Western Express highway. The Eastern Express Highway is an important artery of traffic from and to Bombay which has not only relieved the transport bottleneck on the Bombay-Agra road but also facilitated very speedy traffic from Bombay to Thane. It has been constructed in conformity with the standards of an Express Highway and has the least number of obstructions in the form of road crossings or approach roads. It starts from Sion from the Sion Road No. 3-A, Scheme No. 6, runs towards the north-easterly direction and leaves for Thane district at km. 18·92. Total length of this road is 24·14 km. of which the length of 18·92 km. (62,040 feet) is within the jurisdiction of the Greater Bombay area. This road traverses through Sion, Chembur, Ghatkopar, Vikhroli, Bhandup and Mulund. It meets the Bombay-Agra road near Thane. The entire length of this road has a black-topped surface and has a width of 108 feet throughout its length. It crosses the V.T.-Kurla Harbour Branch line of the Central Railway near Chunabhatti and the Kurla-Mankhurd Harbour Branch line near Chembur where there are bridges. It crosses many branches of the Thane creek where there are drains.

The following important roads either take off from it or are crossed by it : (1) Vitthal Narayan Purao road, (2) S. G. Barve road, (3) Ghatkopar-Mahul road and (4) Vikhroli-Kannamwar Nagar road.

Western Express Highway : This Express Highway is also an important artery of traffic from and to Bombay which has relieved the traffic load on the Swami Vivekanand road (Old Ghodbundar road) and also facilitated speedy traffic from Bombay towards the north. It starts from the Swami Vivekanand road at Mahim Causeway, crosses the Western Railway lines near Bandra, where there is a over bridge, and runs in north direction parallel to the Western Railway lines upto Dahisar and meets the Swami Vivekanand road at the border of Greater Bombay from where the Bombay-Ahmedabad National Highway emanates. It traverses through Bandra, Khar, Santacruz, Vile-Parle, Andheri, Jogeshwari, Goregaon, Malad, Kandivli, Borivli and Dahisar for a total length of 25·6 km. (84,480 feet). The entire length of this road has a black-topped surface with a throughout width of 108 feet.

The following important roads either take off from it or are crossed by it : (1) Sion-Dharavi road, (2) Nehru road (Vile-Parle), (3) Andheri-Sahar road, (4) N. Vasanji road (Andheri-Ghatkopar), (5) Aarey road (Goregaon-Mulund road), (6) Quarry road, (7) Akurli road and (8) Swami Vivekanand road.

The main objects of interest alongside are : Santacruz aerodrome, Sahar International Airport, Hotel Centaur, Aarey Park, National Park and Kanheri Caves.

The Santacruz aerodrome is located at the east side of this road. From Borivli east, the Kanheri Caves road emanates from this highway and runs in eastern direction for a total length of about 4·75 km. to reach the famous caves of Kanheri. The Kanheri Caves road traverses through the famous National Park of Borivli.

Sion to Mulund (Lal Bahadur Shastri marg) : Formerly this road was known as the Bombay-Agra road. This important road is a connecting link between Bombay and Maharashtra as well as the central, eastern and southern parts of India. Before construction of the railway line this road was used as a route of military movements from Bombay to Nashik. Before constructing the Eastern Express highway this was the only important highway leading to and from Bombay. Even after construction of the Eastern Express highway, it has retained its importance. This road starts from the road junction to the west of Sion Bridge near Sion railway station, runs in north-easterly direction, somewhat parallel to the Central Railway lines and leaves for Thane district at km. No. 22 near Mulund Check Naka. This road traverses through Kurla, Ghatkopar, Vikhroli, Bhandup and Mulund for a total length of 22 km. The entire length of this road has a black-topped surface with a width of 30·48 metres. This road traverses through the industrial belt of North Bombay.

The following important roads either take off from it or are crossed by it : (1) Sarveshwar Mandir road, (2) Belgrami road, (3) Sitaram Bhairav lane, (4) S. G. Barve marg, (5) Magan Nathuram road, (6) Sonapur lane, (7) Premier road, (8) Kale marg, (9) Vidyavihar road, (10) Nari Sewa Sadan road, (11) Chirag Nagar road, (12) Parsiwadi road, (13) Karani lane, (14) Jeevdaya lane, (15) Mahatma Gandhi road, (16) Rifle Range road, (17) Hirachand Desai road, (18) Kacharapatti road, (19) Sanghavi Estate road, (20) Sainath Nagar road, (21) Vikhroli Municipal Colony road, (22) Vikhroli station road, (23) Powai road, (24) Kanjur Marg road, (25) Quarry road, (26) James Beaching road, (27) Bhandup station road, (28) Tank road, (29) Bhattipada road, (30) Khot road, (31) Lake road, (32) Bhandup village road, (33) 100 feet link road, (34) Rallifan road, (35) Devidayal road, (36) Sindhi Colony road, (37) Rajendra Prasad road, (38) Bal Rajeshwari road and (39) Pandit Deendayal Upadhyaya marg.

The objects of interest nearby this road are the Powai and Tulsi lakes.

Mahim Causeway to Dahisar : This road formerly known as the Ghodbundar road is now renamed as the Swami Vivekanand road. It starts from Mahim Causeway and runs towards the north somewhat parallel to the Western Railway upto Borivli railway station. Afterwards it crosses the Western Railway lines between the Borivli railway station and the Dahisar railway station. The road traverses through all the western suburbs of Greater Bombay, *viz.* Bandra, Khar, Santacruz,

Juhu, Vile Parle, Andheri, Jogeshwari, Goregaon, Eksar, Pakhadi, Malad, Kandivli, Borivli and Dahisar, for a total length of 17·70 km. The entire length of this road has a black-topped surface.

The following important roads either take off from it or are crossed by it : (1) Western Express Highway, (2) Bandra Bazar road, (3) Hill road, (4) Bandra Station road, (5) Turner road, (6) Vallabhbhai Patel road, (7) 30th Municipal road, (8) Khar-Pali road, (9) 1st Municipal road, (10) South Avenue road, (11) Church road, (12) Main Avenue road, (13) North Avenue road, (14) Makarand Ghanekar marg, (15) Juhu road, (16) Vaikunthlal Mehta road, (17) Jaiprakash road, (18) Caesar road, (19) Prabhat Nagar road, (20) Behram Baug road, (21) Motilal Nagar road, (22) Aarey road, (23) Chincholi road, (24) Jakeria road, (25) Marve road, (26) Mathuradas road, (27) Mahatma Gandhi road, (28) Akurli road, (29) Manori road and (30) Versova-Dahisar road.

The following important objects are located on either side of this road : (1) Bandra Mosque, (2) Bandra Talkies, (3) N. M. Munshi Udyan, (4) Sacred Heart Church, Khar, (5) Milan Talkies, (6) Santacruz bus depot, (7) Nanavati Hospital, (8) Juhu Aerodrome, (9) Mithibai College, (10) Andheri Fire brigade, (11) Triveni Theatre, (12) Andheri railway station, (13) Saint X'avier's Church, Amboli, (14) Hanzer Cinema, Jogeshwari, (15) Jogeshwari railway station, (16) Ram aur Sham Theatres, (17) Patkar College, (18) Jain Siddhashram, (19) Malad Telephone Exchange, (20) Dalmiya College, Malad, (21) Milap Talkies, (22) Kandivli Masjid, (23) Jari Mari Mandir, Kandivli, (24) Kandivli bus station, (25) Poisar bus depot and (26) Borivli railway station.

Besides the above mentioned objects, the following are the famous places of interest in the adjoining areas of the Swami Vivekanand road :

(1) Mount Mary's Church, Bandra, (2) Bandra Talkies ; (3) Juhu beach, (4) Versova beach, (5) Jogeshwari caves, (6) Aarey Milk Colony, (7) Marve and Manori beach, (8) Madh island and beach, (9) Kanheri caves, (10) National Park, Borivli, (11) Mount Poisar and (12) Mandapeshwar temple and caves.

In view of passenger traffic, this is the most important road traversing the western suburbs of Greater Bombay as many long distance city buses ply over this road.

Sion-Panvel route : This route starts from Sion *i.e.* from Laxmi Chauk, runs in common with the Tatya Tope marg (the southern section of the Eastern Express Highway) upto the junction of the Choitram Gidwani marg where it bifurcates to the right and further runs in easterly direction towards Panvel. It leaves Bombay at the Thane creek bridge. This is a very important route joining Bombay with New Bombay and further with Konkan, Pune and southern India.

From the junction of Eastern Express Highway to the junction of Panvel road it is known as the V. N. Purao marg. It crosses the Harbour railway line twice near Chunabhatti railway station and near Mankhurd railway station. The Thane creek bridge on this highway is a wonder in civil engineering.

The following important roads either take off from it or are crossed by it : (1) Tatya Tope marg (Eastern Express Highway), (2) Choitram Gidwani marg, (3) R. C. Chemburkar marg, (4) Gowandi station road, (5) Sion-Trombay road (section of V. N. Purao marg) and (6) Kolwada-Borla road.

The following important objects are located on either side of this route : (1) Chembur Garden, (2) R. K. Film Studio, (3) Golf Club, (4) Deonar bus depot and (5) Mankhurd railway station.

Kurla to Tulsi lake : This route can be divided into three sections, *viz.* (1) Powai road upto Saki Naka, (2) Saki-Vihar road upto the junction of Aarey road and (3) Aarey road upto the junction of Borivli-Mulund road. This route traverses through the industrial belt of Andheri (East) and Kurla (West). The first two sections of this route run parallel to the Mithi river upto the Vihar lake. The route meets the Borivli-Mulund road at Tulsi lake.

The following important routes either take off from it or are crossed by it : (1) S. G. Barve marg, (2) Sahar road, (3) Mathuradas Vasanji road, (4) Vihar Lake road (Goregaon-Vihar road), (5) Aarey road and (6) Borivli-Mulund road.

The following important objects are located on either side of this route : (1) Powai lake, (2) I. I. T., (3) Chinmaya Ashram, (4) Vihar lake, (5) Aarey Milk Colony, (6) Film City, (7) Dewar park and (8) Tulsi lake.

Santacruz to Juhu : This road popularly known as the Juhu road, starts from the Swami Vivekanand road, runs towards the west upto Juhu Tara and thence towards the north upto the junction of the Vaikunthlal Mehta road. The total length of this road is 5.25 km. Juhu beach is located to the west of this road.

Andheri Railway Station to Saki Naka : Formerly this road was known as the Andheri-Kurla road, now renamed as the Mathuradas Vasanji marg. It starts from Andheri station and runs towards the east upto Saki Naka for 6 km., where it meets the Powai road. The important roads which either take off from it or are crossed by it are given below:

(1) Sahar road, (2) Old Nagardas road, (3) Suren road, (4) Western Express Highway, (5) Mahakali Caves road, (6) Chakala road, (7) Marol-Maroshi road and (8) Saki-Vihar road.

The following important objects are located on either side of this road : (1) Gondvali Church, (2) Sangam Talkies, (3) I. I. T., (4) Powai lake and garden.

Andheri Station to Versova : This road is known as the Versova road. It starts from Swami Vivekanand road near Andheri railway station and runs towards the west upto the Versova village. The section from Andheri railway station to Sat Bungalow Park is named as Jai Prakash road. Total length of this road is about 5·8 km.

The following important roads either take off from it or are crossed by it : (1) S. V. road, (2) Dadabhoy road, (3) Veera Desai road and (4) Church road.

The following important places are located on either side of this road : (1) Navrang Cinema, (2) Bhawan's College, (3) Dhake Colony, (4) Char Bungalow, (5) Sat Bungalow park, (6) Versova Church and (7) Versova beach.

Goregaon Station to Vihar Lake : This road also known as the Aarey road, starts from Goregaon railway station and runs towards the east to meet the Saki-Vihar road at Vihar lake. The total length of this road is 9·25 km. It crosses the Western Express Highway near New Zealand hostel. The Mahakali Caves road meets this road at picnic spot of Aarey Colony, while the Marol-Maroshi road meets this road near Maroshi village. The following important objects are located on either side of this road : (1) Modern Bakery, (2) Aarey picnic spot, (3) Powai lake, (4) Chinmaya Ashram, (5) Maroshi and (6) Vihar lake.

Malad to Madh : This road starts from the Swami Vivekanand road at Malad. It is divided into two sections, *viz.* (1) Malad-Marve road and (2) Marve-Madh road. The former runs towards the west, while the latter towards the south. This road has a fine view of the greeneries with some old monuments located at both the sides. A long belt of Marve greeneries with coconuts and other swamp bushes and the beaches of Akasa, Erangal and Madh islands are alluring and picturesque. Marve beach and Madh island are picnic spots where many visitors from Bombay and the adjoining areas spend their holidays.

It traverses through Malad (West), Marve and Madh for a total length of 13·4 km.

The following important roads either take off from it or are crossed by it : (1) Swami Vivekanand road, (2) Versova-Dahisar road, (3) Liberty Garden road, and (4) Versova-Madh road.

The following important places are located on either side of this route : (1) Orieni Church, (2) Kharodi village, (3) Malvani Church, (4) Marve village and beach, (5) Yogashram, (6) Erangal village and beach, (7) Madh island and fort.

Borivli station to Manori : Starting from Borivli station, this route runs in western direction upto Gorai and thence towards the south upto Manori. Further it crosses the Manori creek to meet the Malad-Marve

road near Anand village. It traverses through Borivli (West), Gorai and Manori island for a total length of about 14 km. It was proposed to construct a new aerodrome on Gorai island near this road.[1]

Kanheri Caves road : It starts from the Western Express Highway at Borivli (East) and runs in south-easterly direction upto Kanheri caves for a total length of 6·4 km. It traverses through National Park at Borivli and the thick forest near the caves. It crosses the Dahisar river near Gandhi Dham in National Park.

Besides the above described major routes in Bombay, there are as many as 79 other important roads, the account of which is given in table No. 9.

Bridges : There are as many as nine major bridges in Greater Bombay built in this century, the account of which is given in table No. 10.

Besides the major bridges mentioned in table Nos. 8[2] and 10 there are many small bridges in Greater Bombay. An account of a few important among them is given in table No. 11.

Bombay Road Development Programme : It is proposed to connect the Eastern and Western Express Highways by constructing various link roads in order to help efficiently in relieving the congestion in the suburbs of Bombay. After carrying out extensive surveys and studies, M/s. Wilbur Smith and Associates submitted a report in 1963 on Bombay Traffic and Transportation Study and recommended a plan of Rs. 96 crores (1963 estimates) consisting of a network of freeways, expressways and major street improvements to provide for the needs of the anticipated growth of traffic by the year 1981 in Bombay. It was proposed to complete this plan in four stages of about five years each. As a special programme for implementing the recommendations of Wilbur Smith Report, the survey of Bombay city was taken up in 1966-67. According to this programme Bombay island is proposed to be encircled by freeways and bisected by an expressway.

The following statement shows the details as per the Wilbur Smith Plan :—

Serial No.	Name	Length (in km.)	Cost (Rs. in lakhs)		
			Construction	Right of way	Total
1	East Island Freeway ..	14·34	29,72	3,16	32,88
2	Cross Island Connector ..	1·52	4,80	5	4,85
3	Mahim Creek Connector ..	2·96	1,63	6	1,69
4	West Island Freeway ..	16·61	23,42	70	24,12
5	Western Expressway ..	6·44	1,35	0	1,35
6	Eastern Expressway ..	4·02	1,02	0	1,02
7	Tardeo Expressway ..	1·09	17	1,80	1,97
8	Central Island Expressway ..	12·38	3,27	2,47	5,74
9	Sewri Island Expressway ..	7·87	2,61	1,55	4,16
10	Major Street Improvement ..	119·68	6,68	11,46	18,14
	Grand Total ..	186·91	74,67	21,25	95,92

[1] This proposal has still not materialised.
[2] Table No. 8 gives information of major bridges as in 1909.

The following 25 major routes were taken up under " Major Route Improvement Programme " of the Wilbur Smith Plan :

(1) Maulana Shaukat Ali road, (2) Kalbadevi road, (3) Princess street, (4) Carnac road, (5) Sardar Vallabhbhai Patel road, (6) Hughes road, (7) Bellasis road, (8) Delisle road, (9) Victoria road, (10) King Edward road, (11) Tulsi Pipe road, (12) Elphinstone road, (13) Tilak road, (14) Cross Esplanade road, (15) Waudby road, (16) Lady Jehangir road extension, (17) Santacruz-Chembur link road, (18) Sion-Trombay road (Diversion), (19) Andheri-Ghatkopar link road, (20) Jogeshwari-Vikhroli link road, (21) Goregaon-Mulund link road, (22) Swami Vivekanand road, (23) Mahim Causeway, (24) Borivli-Mulund link road, and (25) Thane-Belapur road.

The following six freeways of 44·8 km. were included in the " Freeway Programme " of the Wilbur Smith Plan :—

(1) East Island Freeway, (2) Cross Island connector, (3) Mahim Creek connector, (4) West Island Freeway, (5) Western Express highway and (6) Eastern Express highway.

Besides, the following three expressways of 25·6 km. were also included in the Plan :—

(1) Tardeo Expressway, (2) Central Island Expressway, and (3) Sewri Expressway.

According to the Wilbur Smith Plan Programme, the following works costing about Rs. 27 crores were proposed to be taken up as 1st phase works, out of which Rs. 18 crores were to be spent in IVth Five-Year Plan and an amount of Rs. 9 crores was proposed to be spilled over to Vth Five-Year Plan[1] :—

(1) East Island Freeway from Carnac Bunder to Reay Road junction,

(2) West Island Freeway from Chaupati to Haji Ali (including Malabar Hill Tunnel),

(3) Major street improvements including link roads—

(*a*) Bandra-Dharavi link road,
(*b*) Andheri-Ghatkopar link road,
(*c*) Goregaon-Mulund link road,
(*d*) Chembur-Mankhurd link road,
(*e*) Engineering surveys.

In addition to the above it had been decided to include Santacruz-Chembur link road and Jogeshwari-Vikhroli link road in the First Phase Programme which was to be taken in the IVth Five-Year Plan.

[1] Of the roads planned, only Bandra-Dharavi link is completed, the rest being under progress.

TABLE

OTHER MAJOR ROADS IN

Serial No.	Name of the road	Starting Point	Ending Point	Area through which it traverses
1	2	3	4	5
1	Cuffe Parade road (General J. Bhonsle marg).	Navy area	Madame Cama road.	Backbay Reclamation.
2	Babulnath road	Junction of Dr. N. A. Purandare marg and Walkeshwar road.	Sitaram Patkar marg.	Babulnath temple.
3	Wodehouse road	Colaba road	Museum junction.	Backbay
4	Chhatrapati Shivaji Maharaj marg.	Museum	Gateway of India.	Museum to Gateway of India.
5	Madame Cama road	Museum	Netaji Subhash road (Nariman Point).	Mayo road to Mantralaya
6	Jamshetji Tata road	Madame Cama road.	Churchgate Junction.	Backbay
7	Veer Nariman road	Netaji Subhash road.	Horniman Circle.	Churchgate, Hutatma Chauk.
8	Hajarimal Somani marg	Junction of M. G. road and Mayo road.	V. T. Junction.	Azad Maidan

No. 9

GREATER BOMBAY—1973-74

Length (in feet) or metres	Width (in feet)	Bridges on it	Roads which emanate from it or meet it	Important junctions
6	7	8	9	10
8,000	60	....	(1) Pandya road, (2) Wodehouse road	....
1,600	70		(1) Babulnath cross road, (2) Chaupati road	Nyayamurti Sitaram Patkar marg junction.
3,000	50	....	(1) Cuffe Parade road, (2) Maharshi Karve road, (3) Cooperage road, (4) Kitridge road.	....
1,200	60 and 80	....	....	....
3,800	90 and 120	....	(1) Cooperage road, (2) Mayo road, (3) Maharshi Karve road, (4) Jamshetji Tata road, (5) Cuffe Parade road.	(1) Cooperage (2) Mantralaya
5,060	80 and 120	....	(1) Veer Nariman road, (2) Maharshi Karve road, (3) Dinshaw Vachcha road.	Churchgate junction
3,680	80 and 120	....	(1) Netaji Subhash road, (2) Maharshi Karve road, (3) Jamshetji Tata road, (4) Mayo road, (5) Mahatma Gandhi road, (6) Dr. D. N. road.	(1) Netaji Subhash road junction. (2) Churchgate junction. (3) Mayo road junction.
1,000	60	....	(1) Dr. D. N. road, (2) Mahapalika road, (3) M. G. road.	V. T. Junction

TABLE

Serial No.	Name of the road	Starting point	Ending point	Area through which it traverses.
1	2	3	4	5
9	Walchand Hirachand-marg.	Nagar Chauk, V.T.	Ballard road.	Nagar Chauk, G.P.O., Indira dock, Yellow gate.
10	Mint road ..	Fort market	G.P.O.	Ballard Pier
11	Mahapalika marg ..	Nagar Chauk	Dhobi Talao	Azad Maidan and Esplanade Court.
12	Lokmanya Tilak marg ..	Dhobi Talao	P. De'Mellow road.	Crawford market.
13	Ist Marine Lines street.	Maharshi Karve road.	Dhobi Talao	Dhobi Talao
14	Drainage Channel road	Arthur road	Cletk road	Tulsiwadi & Mahalaxmi.
15	Koshavrao Khade marg (Clerk road).	Haji Ali	N.M. Joshi marg.	Race Course and Gadge Maharaj Chauk.
16	Dr. E. Moses road ..	Worli Naka	Gadge Maharaj Chauk.	Race course.
17	Mori road ..	Senapati Bapat marg.	Mahim Causeway.	Mahim
18	Yusuf Meherally road	Mumbadevi road.	P. De'Mellow road.	Masjid station.
19	Maulana Abdul Gafar-khan road.	Dr. Annie Besant road.	Worli village.	Worli Seaface.
20	Fergusson road ..	Worli Naka	N. M. Joshi marg.	Worli and Lower Parel.

No. 9—*contd.*

Length (in feet)	Width (in feet)	Bridges	Roads which emanate from it or meet it	Important junctions
6	7	8	9	10
3,610	80 and 60	....	(1) Mint road, (2) P. De'Mellow road, (3) Shahid Bhagatsing road. (4) Nicol road.	(1) G. P. O., (2) P. De'Mellow road junction.
900	80	....	....	....
2,240	100	....	(1) D. N. road, .. (2) M. G. road, .. (3) Lokmanya Tilak road.	Nagar chauk
4,400	100	Carnac bridge	(1) D. N. road, (2) Palton road, (3) Abdul Rehman street, (4) Mohammad Ali road.	Crawford market junction.
1,000	60	....	(1) M. G. road, (2) Maharshi Karve road.	Vasudeo Balwant chauk.
2,960	80	....	Tardeo road	....
7,400	80	Mahalaxmi bridge.	E. Moses road ..	Gadge Maharaj Chauk.
7,440	80	Mahalaxmi bridge.	....	(1) Gadge Maharaj Chauk., (2) Worli Naka.
2,000	60	....	L. J. road	L. J. road junction
3,520	60	Masjid bridge	(1) Abdul Rehman street, (2) Mohammad Ali road.	Masjid junction
9,200	120	....	(1) Worli road No. 10, (2) Dr. Annie Besant road.	Atre Chauk
4,700	40	....	(1) Senapati Bapat marg., (2) N. M. Joshi marg.	....

TABLE

Serial No.	Name of the road	Starting point	Ending point	Area through which it traverses
1	2	3	4	5
21	Pandurang Budhkar marg (Globe Mill Passage)	Dr. A. Besant road.	N. M. Joshi marg.	Worli.
22	N. C. Kelkar road	S. K. Bole road	Lady Jamshetji road.	Dadar (West)
23	Bhawanishankar road ..	S.K. Bole road	Gokhale road	Dadar
24	Tilak road ..	N. C. Kelkar road.	G. D. Ambekar road.	Dadar and Wadala.
25	Samaldas Gandhi marg ..	Maharshi Karve road.	Janjikar street	Kalbadevi and Girgaum.
26	Maulana Azad road ..	Kika Street	Gadge Maharaj Chauk.	Null bazar and Nagpada.
27	Jehangir Boman Behram road.	Tardeo	Maulana Azad road.	Bombay-Central and Nagpada.
28	Patthe Bapurao street (Falkland road)	Tardeo	Kika street	Tardeo, Golpitha.
29	R. S. Nimbkar marg (Foras road)	Falkland road	Jehangir Boman Behram road.	Kamathipura
30	Dadasaheb Phalke road ..	Dr. Ambedkar road.	Kohinoor road	Dadar
31	Mirza Galib street (Clare road)	Maulana Azad road.	Byculla bridge	Nagpada

No. 9—*contd.*

Length (in feet)	Width (in feet)	Bridges on it	Roads which emanate from it or meet it	Important junctions
6	7	8	9	10
4,250	80	....	....	....
3,200	60	....	Ranade road	Shivaji Park
3,000	60	....	.... ..	....
4,000	60	Tilak bridge	Babasaheb Ambedkar road.	Khodadad circle
2,600	60	Princess street fly-over.	(1) Jagannath Shankarshet road, (2) Kalbadevi road.	....
8,900	60	....	(1) Sardar Vallabhbhai Patel road, (2) Maulana Shaukat Ali road, (3) Jehangir Boman Behram road.	Nagpada junction.
4,400	90	Bellasis bridge	(1) Anandrao Nair road, (2) Maulana Azad road, (3) Foras road.	Bombay Central
6,400	60 & 40	Falkland bridge	(1) Dadasaheb Bhadkamkar marg, (2) R. S. Nimbkar road, (3) Maulana Shaukat Ali road, (4) Sardar Vallabhbhai Patel road.	D. B. marg junction.
2,200	60	....	(1) Falkland road, (2) J. B. Behram road.	....
3,200	50	....	(1) Naigaum cross road.	....
1,900	80	....	(1) J. B. Behram road, (2) Maulana Azad road, (3) Byculla bridge	Byculla bridge junction.

TABLE

Serial No.	Name of the road	Starting point	Ending Point	Area through which it traverses
1	2	3	4	5
32	Lakhamsey-Napoo road ..	Kohinoor road	Bhandarkar road.	Matunga and Dadar.
33	Sitladevi Temple road ..	Veer Savarkar marg.	Senapati Bapat marg.	Mahim
34	Rao Bahadur S. K. Bole road.	N. C. Kelkar road.	Veer Savarkar road.	Prabhadevi and Dadar.
35	Prabhadevi new road ..	Gokhale road	Veer Savarkar road.	Prabhadevi
36	Sayani road ..	Veer Savarkar road.	Senapati Bapat road.	Prabhadevi
37	Acharya Donde marg ..	Babasaheb Ambedkar road.	R. A. Kidwai road.	Parel
38	Bal Gangadhar Kher marg	Walkeshwar road.	Kemp's Corner	Hanging garden.
39	Dattaram Lad road ..	Chinchpokli station.	Reay road	Chinchpokli and Lalbaug.
40	Road No. 19, Scheme 6 of Sion.	Sion road, No. 26 A and B.	Dharavi	Dharavi
41	M. Palav marg (Currey road) ..	N. M. Joshi marg.	Babasaheb Ambedkar road.	Lower Parel, Lalbaug.
42	J. Bhatankar marg ..	Senapati Bapat marg.	Babasaheb Ambedkar road.	Parel
43	Appasaheb Marathe marg	New Prabhadevi road.	Dr. Annie Besant road.	Prabhadevi

No. 9—*contd.*

Length (in feet)	Width (in feet)	Bridges on it	Roads which emanate from it or meet it	Important junctions
6	7	8	9	10
4,800	60 & 70	....	....	....
1,100	60	....	Lady Jamshetji road.	Lady Jamshetji road junction.
2,650	60	....	(1) Gokhale road (south), (2) Gokhale road (north).	Gokhale road junction.
2,400	50	....	Appasaheb Marathe marg.	....
3,000	80 & 60	....	(1) Senapati Bapat marg, (2) Gokhale road (south), (3) Shankar Ghanekar marg.	(1) Senapati Bapat marg junction, (2) Gokhale road junction.
5,000	80	....	(1) Dr. Babasaheb Ambedkar road, (2) G. D. Ambekar road, (3) Thackersey Jivaraj road,	Parel junction
7,280	60, 40 & 30	....	(1) Manav Mandir road, (2) Mount Pleasant road, (3) L. D. Ruparel road, (4) Gowalia Tank road.	Gowalia Tank road junction.
2,900	60	....	(1) Babasaheb Ambedkar road.	Kala chauky
2,290	100	Sion Hospital bridge.	(1) Bandaji road extension.	....
1,700	60	Currey Road Bridge.	(1) Babasaheb Ambedkar road.	Bharatmata junction.
2,330	60	Elphinstone bridge.	(1) Babasaheb Ambedkar road.	Parel T. T.
7,400	80	....	....	Century Bazar.

TABLE

Serial No.	Name of the road	Starting point	Ending point	Area through which it traverses
1	2	3	4	5
44	Thackersey Jivraj marg ..	Jakaria Bunder road extention.	Golanji Hill road.	Sewri
45	Choitram Gidwani road ..	Ghatkopar-Mahul road.	V. N. Purao marg.	Chembur
46	Ghatkopar-Mahul road	Rajawadi 7th road.	Eastern Express highway.	Ghatkopar
47	Mahatma Gandhi road ..	Rajawadi 7th road.	Lal Bahadur Shastri marg.	Ghatkopar
48	Dayanand Saraswati marg	Chembur station.	V. N. Purao road.	Chembur
49	S. G. Barve marg ..	V. N. Purao road.	Kalina	Chembur and Kurla.
50	Mahatma Gandhi road ..	Mulund railway station.	Rajendra Prasad road.	Mulund (W)
51	Netaji Subhash road ..	Mulund station.	Rajendra Prasad road.	Mulund (W)
52	Rajendra Prasad road ..	Netaji Subhash road.	Lal Bahadur Shastri marg.	Mulund (W)
53	Devidayal marg ..	M. G. road	Lal Bahadur Shastri marg.	Mulund (W)
54	Turner road ..	Bandra station	Perry road	Bandra
55	Hill road ..	S. V. road	Mount Merry road.	Bandra (W)
56	Perry road ..	Turner road	Mahadeobhai Desai road.	Bandra (W)

No. 9—*contd.*

Length (in feet)	Width (in feet)	Bridges on it	Roads which emanate from it or meet it	Important junctions
6	7	8	9	10
N.A.	40	....	Acharya Donde marg.	....
5,280	120	....	....	....
3,600	60 & 78	....	(1) V. N. Purao road, (2) C. Gidwani road.	Eastern Express highway junction.
4,700	60 & 78	....	....	Eastern Express highway junction.
2,360	80	....	....	....
15,840	25 & 45	....*	(1) Eastern Express highway, (2) Lal Bahadur Shastri marg.	Lal Bahadur Shastri marg junction.
3,475	60	....	Devidayal road	Panchrasta
3,140	60	....	Rajendra Prasad road.	....
5,300	60	....	(1) Netaji Subhash road, (2) M. G. road.	....
3,380	60	....	....	....
4,000	50 & 90	....	Swami Vivekanand road.	S. V. road junction.
6,200	40	....	Waterfield road.	S. V. road junction.
2,600	50	....	....	....

* Since there is no bridge over Railway near Kurla station through vehicular traffic is not possible.

TABLE

Serial No.	Name of the road	Starting point	Ending point	Area through which it traverses.
1	2	3	4	5
57	Linking road ..	S. V. road ..	Juhu road ..	Bandra (W), Khar (W) and Santacruz (W)
58	Byramjee Jeejibhoy road	Hill road ..	Bandra Bandstand.	Bandra sea-shore.
59	Mahadeobhai Desai road (Carter road)	Perry road ..	Khar Danda	Bandra sea-shore.
60	Waterfield road ..	Hill road ..	Linking road	Bandra (W)
61	1st Khar road ..	Carter road ..	Khar station ..	Khar (W)
62	South Avenue road ..	S. V. road ..	Khar Danda ..	Khar (W)
63	Church road ..	Khar subway	S. V. road ..	....
64	Vaikunthbhai Mehta road	S. V. road ..	Juhu road ..	Vile-Parle (W)
65	Andheri-Sahar road ..	Andheri railway station.	Sahar ..	Andheri (E) and Sahar.
66	Dashrathlal Joshi marg ..	Vile-Parle station.	S. V. road ..	Vile-Parle (W)
67	Marol-Maroshi road ..	Mathuradas Vasanji road.	Aarey colony	Marol and Maroshi.
68	Nehru road ..	Santacruz station.	Military cantonment.	Santacruz (W)
69	Quarry road ..	S. V. road ..	Malad quarry	Malad (E)
70	Mahakali Caves road ..	Mathuradas Vasanji road.	Mahakali caves	Andheri (E)

No. 9—*contd.*

Length (in feet)	Width (in feet)	Bridges on it	Roads which emanate from it or meet it	Important junctions
6	7	8	9	10
7,600	60	....	(1) 30th Khar road, (2) 1st Khar road, (3) South Avenue road, (4) Juhu road.	S. V. road junction.
4,000	30	....	....	....
8,000	30	....	Perry road.	....
3,100	40	....	(1) Turner road, (2) 30th Khar road.	....
6,000	50	....	(1) Linking road, (2) Ambedkar road.	....
2,650	40	....	Linking road.	Khar junction.
900	60	Subway	....	....
4,620	100	....	....	....
12,210	70	....	(1) M. Vasanji road, (2) Western Express highway, (3) M. G. road, (4) Chakala road.	Western Express highway junction.
1,500	60	....	....	....
10,560	40	....	....	....
7,920	100	....	Western Express highway.	Western Express highway junction.
9,570	60	....	Western Express highway.	,,
9,240	40 & 60	....	M.I.D.C. road.	....

TABLE

Serial No.	Name of the road	Starting point	En ling point	Area through which it traverses
1	2	3	4	5
71	Motilal Nagar road ..	S. V. road ..	Motilal Nagar..	Goregaon (W)
72	M. G. road (Goregaon) ..	S. V. road	....	Goregaon (W)
73	Malad Pushpa Park road	Malad station	Pushpa Park ..	Malad (E)
74	Eksar road ..	Gorai road ..	Eksar village	Borivli (W)
75	M. G. road and Charkop road.	S. V. road ..	Charkop ..	Kandivli (W)
76	Akurli road ..	Kandivli station	Western Express highway.	Kandivli (E)
77	M. G. road (Borivli) ..	Borivli station	Western Express highway.	Borivli (E)
78	Kasturba road ..	Borivli station	Western Express highway.	Borivli (E)
79	Mahatma Gandhi road and Ramkrishna Chemburkar marg.	Lal Bahadur Shastri marg junction.	Burmahshell refineries.	Ghatkopar and Chembur.

No. 9—*concld.*

Length (in feet)	Width (in feet)	Bridges on it	Roads which emanate from it or meet it	important junctions
6	7	8	9	10
3,960	60	....	....	....
N.A.	60	....	....	....
N.A.	50	....	....	....
N.A.	40	....	....	....
11,880	80	....	....	....
3,960	60	....	....	....
3,300	60	....	....	....
2,000	40	....	....	....
8 km.	....	Railway bridges near Ghatkopar and Chembur railway stations.	(1) Jawahar road, (2) R. B. Mehta marg, (3) Reti Bunder road, (4) Eastern Express highway, (5) Chembur-Govandi road (Acharya marg), (6) V. N. Purao marg, (7) S. G. Barve marg, (8) Choitram Gidwani marg, (9) F. C. I. road, (10) Vashi Village road, (11) Mahul Village road,	(1) L. B. S. marg junction, (2) Shraddhanand road junction, (3) Jawahar road junction, (4) Express highway junction, (5) Chembur-Govandi road, (6) Chembur naka, (7) Choitram Gidwani road junction.

TABLE

MAJOR BRIDGES IN

Serial No.	Name of the Bridge	Names of the roads on which the bridge is constructed	Names of the roads that bridge links	Area in which located
1	Kemp's Corner Fly Over ..	(Kemp's Corner Junction) Dr. G. Deshmukh marg and N. S. Patkar marg.	Dr. G. Deshmukh marg, N. S. Patkar marg.	Cumbala Hill.
2	Princess Street Fly Over ..	Samaldas Gandhi marg E2 road, H Road, N. Subhash road, M. Karve road.	Samaldas Gandhi marg, E2 road, H road, N. Subhash road.	Marine Drive and Kalbadevi.
3	Andheri Over Bridge ..	Over Western Railway tracks.	Swami Vivekanand road and Teli gally.	Andheri.
4	Poisar Bridge ..	Swami Vivekanand road.	Swami Vivekanand road and Akurli road.	Poisar.
5	Oshivara Bridge ..	Do. ..	S. V. Road ..	Oshivara.
6	Dahisar River Bridge ..	S. V. Road ..	S. V. road ..	Borivli East
7	Ghatkopar Bridge ..	Connects Mahatma Gandhi road on each side.	M. G. road ..	Ghatkopar
8	Govandi Bridge ..	Mahul Ghatkopar road.	V. N. Purao marg (Northern area beyond Kurla-Mankhurd Rly.) and Deonar Slaughter House road.	Deonar.
9	Thane Creek Bridge ..	Bombay-Pune road ..	V. N. Purao marg and Thane-Belapur road.	Near Mankhurd

Recently a new R.C.C. railway over-bridge is constructed at the north of Ghatkopar railway station. It connects Lal Bahadur Shastri marg and Eastern Express highway. A bridge between Bhandup and Mulund railway stations is also constructed. It connects Lal Bahadur Shastri marg and Eastern Express Highway.

No. 10

GREATER BOMBAY, 1973-74

Structural aspects				Cost of construction (in Rs.)	Year of construction	Year of opening	Remarks
Type	Length	Height	Width				
Prestressed concrete construction	910′	17′	49′	14.5 lakhs	1-10-64 to 13-4-65	14-4-65	
Prestressed concrete construction	2050′	22′ on Rly. 18′ on road	44′	53 lakhs	1-11-64 to 2-11-67	3-11-67	
N.A.	700′	..	90′	66,53,205	1965 to 1971	1972	
Arch masonary	..	..	90′	4,95,657	1971	1971	
Arch masonary	..	..	90	22,44,947	1972	1973	
Arch masonary	125′	..	25	..	..	.	
(Not known being Railway Bridge)							
R.C.C. ..	400 mts.	5.5 M. over rails	27.43 m.	52,00,000	1973-74		
(*a*) Foundations:— (*i*) 2.5 metres dia. well. (*ii*) 105 metres dia Hochstrasser type piles anchored to hard rock. (*iii*) 1.15 metres dia. Hochstrasser type piles anchored as rock. (*b*) Substructure—R.C.C. forked inclined piers for piers 7 to 30. (*c*) Superstructure—Precast prestressed concrete.	1837 mts.	33 mts.	13.4 mts.	5024 crores including approaches	1971	27 Jan. 1972	(1) 39 spans varying from 36 metres to 53.4 metres. (2) High tidal level +13.00 mts. (3) Maximum depth of water 17.7 meters. (4) Maximum depth of foundation 19 mts. below bed. (5) Navigational structure 901 mts. above high tide level.

TABLE No. 11

OTHER IMPORTANT BRIDGES IN GREATER BOMBAY, 1973-74

Serial No.	Ward	Name of Bridge	Location and description
1	A	Carnac bridge	.. This bridge is located at Lokmanya Tilak road (Carnac road). It goes east-west over the Central Railway tracks. The bridge is maintained by railway authorities.
2	B	Elphinstone bridge	.. This bridge was constructed by the Railways in 1868, connecting Sardar Vallabhbhai Patel road and P. De'Mellow road. It was named after the late Governor of Bombay, Mountstuart Elphinstone.
3	C	Masjid bridge	.. It was constructed by Railways in 1868, connecting Yusuf Meherali road and P. De'Mellow road. It is named after Jakeria Masjid.
4	C	Bellasis bridge	.. This bridge connects Tardeo junction with Dr. Dadasaheb Bhadkamkar marg.
5	D	Falkland bridge	.. This bridge connects Tardeo T. T. with Dr. Dadasaheb Bhadkamkar marg.
6	D	Frere bridge	.. It connects Nana Chowk with Dr. Dadasaheb Bhadkamkar marg junction, Maulana Shaukat Ali road.
7	D	Kennedy bridge	.. This bridge connects Nana Chowk with Sardar Vallabhbhai Patel road and Mama Parmanand marg.
8	D	French bridge	.. This bridge connects Sardar Vallabhbhai Patel road with Nyayamurti Sitaram Patkar marg.
9	D	Sandhurst Road bridge	.. This bridge connects Sardar Vallabhbhai Patel road with Dr. N. A. Purandare marg.
10	D	Pedestrian foot over bridge at Charni road station.	This bridge connects Charni Road with Dr. Bhalerao marg.

TABLE No. 11—*contd.*

Serial No.	Ward	Name of Bridge	Location and description
11	D	Pedestrian foot-over bridge known as Patel bridge near Birla Krida Kendra.	This bridge connects Dr. N. A. Purandare marg with Mathew road.
12	E	Garden bridge ..	From N. M. Joshi marg to Dr. Ambedkar road.
13	E	Byculla bridge ..	From Sir J. J. road to Seth Motishah lane.
14	E	Victoria Road over bridge	Joining Dr. Babasaheb Ambedkar road and Reay road.
15	E	Nesbit Road bridge ..	From Sir J. J. road to Mazagaon road junction.
16	E	Nawab Tank bridge ..	From Reay road to Mazagaon Pakhadi road.
17	F/S	Elphinstone bridge ..	From Elphinstone road (Parel) to Senapati Bapat marg (junction with Sayani road).
18	F/S	Currey road bridge ..	From Curry Road to N. M. Joshi marg (above Central Railway's Currey Road station).
19	F/S	Sane Guruji road bridge ..	From Sane Guruji marg to N. M. Joshi marg (above Central Railway's Chinchpokli station).
20	F/N	Tilak bridge ..	Khodadad Circle to N. C. Kelkar road. This is a flat girder bridge passing over Central and Western railway lines. It forms a very important link joining south and west parts of Bombay with eastern area.
21	F/N	100 ft. wide bridge over Central Railway lines starting from Sion road by the side of Lokmanya Tilak Memorial General Hospital.	

TABLE No. 11—*contd.*

Serial No.	Ward	Name of Bridge	Location and description
22	F/N	78 feet wide vehicular traffic bridge over Harbour Branch Railway lines starting from Road No. 16 and going to Raoli Camp.	This bridge with approaches was completed in 1964. At present it leads to Raoli area, Central Government Colony and Antop hill, Wadala.
23	F/N	Sion Station bridge ..	This bridge joins Sion with Agra road, Dharavi and Eastern Suburbs.
24	G/S	Lower Parel bridge ..	Opposite Lower Parel Railway station between Senapati Bapat marg and Currey Road.
25	G/S	Currey Road bridge ..	Opposite Currey Road Railway station joining N. M. Joshi marg.
26	G/S	Chinchpokli bridge ..	Opposite Chinchpokli Railway station joining with junction of N. M. Joshi marg and Sane Guruji marg.
27	G/S	Mahalaxmi bridge ..	Opposite Mahalaxmi Railway station between Dr. E. Moses road and Jacob circle.
28	G/N	Mahim Causeway bridge.	This bridge is over the creek dividing the city and suburbs on west side.
29	L	C. S. T. road bridge ..	This bridge is between Lal Bahadur Shastri marg and Kurla Railway station over S. G. Barve marg (west). This bridge makes Old Agra road a continuous one to join Lal Bahadur Shastri marg which is the trunk road.
30	L	Safed Pool (white bridge)	This bridge connects Kurla and Andheri and serves the whole of the Industrial Complex along Kurla-Andheri road, Marol village, Chandivli and Saki Naka.
31	M	Eastern Express Highway bridge.	This bridge is on Kurla-Mankhurd Railway track, near Chembur level crossing. It is steel framed structure constructed in 1961-62.

TABLE No. 11—*concld.*

Serial No.	Ward	Name of Bridge	Location and description
32	N	Bridge over the *nalla* at Mahatma Gandhi road near cemetery adjoining sewage purification and pump-house, Ghatkopar.	This bridge was widened and reconstructed in 1969-70.
33	N	Bridge over the waterpipe line, Lal Bahadur Shastri marg (Agra road), Ghatkopar.	This bridge is near Municipal Water Department and Workshop, Ghatkopar.
34	P	Ram Mandir road bridge across Ram Mandir *nalla*, Goregaon.	The length of this bridge is about 100 feet and width 40 feet.
35	P	Marve road bridge ..	This is constructed across a creek.
36	R	Charkop bridge at Kandivli (West).	This is on main Charkop road. Present width is about 14 feet. This is a masonry bridge, constructed during pre-Independence era.
37	R	Dahanukar wadi bridge on Mahatma Gandhi road, Kandivli (West).	This is on Poisar river. Present width is about 36 feet. Pillars of masonry superstructure.
38	R	Bridge behind Fish market, Kandivli (West).	This is about 12 feet wide. Pillars are of masonry.
39	R	Bridge on Swami Vivekanand road across Dahisar river near Daulatnagar, Borivli (East).	This is about 18 feet wide old masonry bridge constructed during pre-Independence era.
40	R	Portuguese bridge on Dahisar river, Dahisar (West).	This is an old bridge of masonry for pedestrian traffic only.
41	R	Bridge at Gorai Creek, Borivli (West).	This is 13 feet wide constructed newly on old site.
42	R	Bridge on Dahisar river, Borivli (East).	This is 14 feet wide bridge. Pillars are of masonry and superstructure is R.C.C. slab.

The following statement indicates the works in progress with revised estimated cost, expenditure incurred in IVth Plan and spill over to Vth Five-Year Plan[1]:—

Spill over works in the Vth Five-Year Plan	Revised estimated cost (Rs. in crores)	Expenditure incurred in the IVth Plan (Rs. in crores)	Spill over to Vth Plan (Rs. in crores) April 1974 to March 1979
(I) West Island Freeway including grade separated junction at Chaupati, Malabar Hill tunnel, reclamation and sea wall, etc. for portion between Chaupati to Haji Ali	11.50	1.28	6.00
(II) Link roads:—			
(*a*) Bandra-Dharavi			
(*b*) Santacruz-Chembur			
(*c*) Chembur-Mankhurd	8.28	1.45	3.50
(*d*) Andheri-Ghatkopar			
(*e*) Jogeshwari-Vikhroli			
(*f*) Goregaon-Mulund			
(III) Engineering Surveys	0.21	0.08	0.10
Total ..	19.99	2.81	9.60
(IV) Sion-Mahim link road	0.75	0.25	0.50
Grand Total ..	20.74	3.06	10.10

(I) *West Island Freeway*: The work of sea wall and reclamation of land along the shore from Petit Hall to Haji Ali was started in IVth Five-Year Plan. Few hectares of land of the total of 48 hectares has been reclaimed so far. Nepean Sea road over bridge is also completed.

(II) *Link roads*: The details of link roads according to the Wilbur Smith Plan are as under:—

Link road	Length in km.	Cost (Rs. in lakhs)
(*i*) Goregaon-Mulund	12.38	175.00
(*ii*) Jogeshwari-Vikhroli	10.43	74.11
(*iii*) Andheri-Ghatkopar	8.26	144.00
(*iv*) Santacruz-Chembur	6.03	56.37
(*v*) Bandra-Dharavi	2.54	49.00
(*vi*) Sion-Mahim	2.58	74.84

Besides, there was a provision of Rs. 80 lakhs for other purposes during the IVth Five-Year Plan.

(*a*) *Bandra-Dharavi link road*: The work including the bridge across Mahim creek was completed and the road was opened for traffic in January 1973.

[1] Latest information not available.

(*b*) *Santacruz-Chembur link road* : Stage I of 2466 metres from Western Express Highway to Agra Road. There will be one over bridge in this section near Kurla railway station.

Stage II of 160 metres from Western Express Highway to C.S.T. Road. The work is in progress.

(*c*) *Chembur-Mankhurd link road* : The work of the road is in progress though it was expected to be completed by 1976.

(*d*) *Andheri-Ghatkopar link road* : Stage I of 1.4 km. from Eastern Express Highway to Agra road. The work of 1 km. is completed.

Stage II—From Western Express Highway to Agra road—The work is in progress.

(*e*) *Jogeshwari-Vikhroli link road* : Stage I (1.4 km.) from Eastern Express Highway to Agra road, and Stage II from Western Express Highway to Agra road—The work is in progress.

(*f*) *Goregaon-Mulund link road* : Stage I (2 km.) from Eastern Express highway to Agra road—work is in progress.

Stage II-A—Western Express Highway to Film City—The work is completed.

Stage II-B—National Park—To maintain the vegetation in National Park it is decided to drop this work.

Stage II-C—From Agra road to National Park—This portion is also dropped in view of the decision to maintain forest in National Park.

(III) *Engineering Surveys* : All major surveys for the first phase work are completed.

(IV) *Sion-Mahim link road* (2.47 km.) : The length of 0.67 km. from Dharavi to Bandra-Dharavi link road is completed.

Provision of New Works in Vth Five-Year Plan : The following new works were proposed to be taken up in Vth Five-Year Plan. The estimated cost and the Plan provisions during the Vth Five-Year Plan are indicated below:—

(Rs. in crores)

New works during Vth Five-Year Plan	Estimated cost	Provision in Vth Five-Year Plan
(I) East Island Freeway including Carnac Bunder Flyover, Sewree Flyover and elevated portion between Wadi Bunder and Victoria bridge.	15.30	1.60
(II) Sewree Expressway	4.70	1.00
Total ..	20.00	2.60

Bridges under the Bombay Road Development Plan : The following major bridges are proposed to be constructed in the Bombay Road Development Plan:—

(*a*) *Railway over bridges* : Across Central Railway (joining Eastern Express Highway and Agra Road)—

(*i*) Santacruz-Chembur link road—north of Kurla station.*

* Construction of this bridge is in progress.

(*ii*) Andheri-Ghatkopar link road—north of Ghatkopar station.
(*iii*) Goregaon-Mulund link road—between Bhandup and Mulund station.

Across Western Railway (joining Mahim and Dharavi)—
(*i*) Sion-Mahim link road—north of Mahim station.

(*b*) *Bridges on roads* :
(*i*) Bandra-Dharavi link road—Mahim creek bridge.
(*ii*) Nepean Sea over bridge—Nepean Sea road bridge over existing road for the facility of Malabar Hill tunnel and West Island Freeway.

(*c*) *Flyovers/Grade separated Junctions** (in numbers) :
(*i*) East Island Freeway—1 to 11.
(*ii*) West Island Freeway—12 to 21.
(*iii*) Central Island Freeway—22.
(*iv*) Eastern Express highway—23 to 27.
(*v*) Western Express highway—28 to 34.

(*d*) *Underground Roadways** :
(*i*) Malabar Hill tunnel.
(*ii*) Subway on Central Island Expressway near Sion Circle.

Of the above mentioned bridges included in the Bombay Road Development Plan, some have been completed and are opened for traffic.

Reappraisal of Bombay Road Development Scheme : Due to a number of changes that have taken place since the submission of the report by M/s. Wilbur Smith and Associates in 1963, such as, land use plan of Bombay, proposed New Bombay, proposed development of Bombay Metropolitan Region, proposed Bombay-Uran link, proposed Mass Rapid Transit System, etc., it became necessary to have a re-appraisal of the Bombay Road Development Plan and integrate it with the Plan for Mass Rapid Transit System proposed by Railway organization.

The work of carrying fresh traffic studies of the Greater Bombay and the Bombay Metropolitan Region was entrusted by the Government to Central Road Research Institute, New Delhi. The targets for the Bombay Road Development programme are likely to be amended from time to time based upon the recommendations that may be made by the C.R.R.I., New Delhi in their final report after completion of the traffic study.

Truck Terminal Project, Wadala : In order to reduce the transport load and the traffic congestion in Bombay and particularly in the busy

* Construction of these bridges is in progress.

areas, the Bombay Metropolitan Regional Development Authority (BMRDA) has prepared a scheme to establish a truck terminal at Wadala. The BMRDA has selected the premises near Wadala, popularly known as Wadala-Anik. The scheme for truck terminal at Wadala-Anik was sanctioned by the Government on 22nd April 1976. A open space of about 125 acres (excluding the area of entry roads) is reserved for this scheme. Though it is away from the business area it will be convenient to the truck owners and the booking agents whose offices will be shifted to the proposed truck terminal area as new markets will be nearer. The proposed area of the Truck Terminal is at the north-end of the Eastern corridor and will be easily connected to the East Island Tollway after its construction. As the proposed area of the Truck Terminal is located near the junction of the Eastern Express Highway and the Sion-Panvel road it can be easily joined to these roads. Nearly 75 per cent of the total truck transport is carried out by these two roads only. Besides, the trucks from the Western Express Highway can reach the terminal easily by the linking roads. The Municipal Corporation has decided to construct a new road from Wadala to Mahul-Ghatkopar road. After the construction of this road truck terminal area can be easily connected to South Bombay.

To the north of the truck terminal area it is proposed to reserve an area of 100 acres for the construction of warehouses and godowns.

The proposed area of the truck terminal is shown below:—

Land use	Proposed area (acres)	Percentage to total proposed area
(1) Plots reserved for truck companies	47.18	25.51
(2) Combined space for parking trucks and internal roads	80.63	43.59
(3) Space for Petrol pumps, garage and vehicle weighers ..	9.82	5.30
(4) Area under architecturally controlled building blocks.	16.35	8.84
(5) Organised greeneries	31.00	16.76
Total ..	184.98	100.00

The truck terminal will be beneficial to the truck transport owners also as most of the big markets in Bombay are located within the radius of about 10 km from the site.

HARBOUR

The port of Bombay has traditionally been known as the " Gateway of India ". Located in the bay between the mainland on the east and the island of Bombay on the west, the port is endowed with one of the finest natural harbours. Bombay's central position on the west coast of India, its advantageous position with respect to the Suez Canal and Europe

and its accessibility to a vast hinterland by three broadguage railways running north, east and south and a network of National and State highways, have made her the main distributing entrepot for the overseas trade from the western and central region of India. Bombay's claim as the premier port of India is based on the fact that it is the leading oil port with over 50 per cent of the oil traffic of India, the leading general cargo port with about 38 per cent of the traffic, the leading port for import of food-grains with 35 per cent of the traffic, the leading port for overseas passenger traffic and the main base of the Indian Navy.

The harbour proper, which excludes the open sea within port limits south of Colaba Point, extends over 18,000 hectares in area and provides secure and ample shelter for shipping throughout the year. The approaches to the harbour are well lighted with the unattended outer light vessel (Bombay floating light), visible from 15 km. The Prongs Lighthouse to its north is visible from 27 km. and the Kennery Light-house to the south is visible from 29 km. The Port Trust pilot vessel is generally stationed at the entrance of the harbour. The entrance of the harbour, which is approached from the south-west between Prongs Reef off Colaba Point and the Thull Reefs lying off the mainland to the south-east, is at a distance of about 9 km. About 19 km. in length, the harbour runs south-west and north-east and is bounded on the north by the Trombay Pir Pau area of the city. Proceeding up the harbour to the docks, a distance of about 7 km. from the entrance, the mainland, with the Karanja Hills in the foreground, lies to the east, and the city to the west, the width of the harbour narrowing down to about 6 km. Further up the harbour and to the north-east is the Butcher's Island. About 4 km. to the north and running east-west lie Trombay and Pir Pau, which mark the northern extremity of the harbour. To the east of Pir Pau are the wide mouths of two large tidal creeks, the Thane creek and the Panvel creek.

The port limits falling within the jurisdiction of the B.P.T. enclose a water area of approximately 180 sq. km. The southern and western port limits are delimited by a line starting from Malabar point on the western foreshore of the city and running southwards to the Bombay floating light (About 8 km. south-west of Prongs Reef Lighthouse) and thence in a south-easterly direction to Kennery (Khanderi) Island and the village of Navegaon on the mainland. The northern and eastern limits of the port are delimited by a line starting from the eastern tip of Trombay Island and running across Thane Creek, to the northern tip of Nhava Island and thence southwards along the coast line and across Dharamtar creek, terminating at Navegaon.

The tidal variation in the harbour is mainly semi-diurnal with an appreciable diurnal element. The mean range of tides is 12 feet at springs. The normal maximum currents inside the harbour are about 2 to 3

knots, though the strongest currents which run between Elephanta and Butcher's Island have a maximum velocity of 4 to 5 knots. The Arabian sea is subject to infrequent severe tropical revolving storms known as ' Cyclones ', which sometimes pass over Bombay in May/June and October/November. The last cyclonic storm which passed directly over Bombay was in 1948, when a wind speed of over 150 km/ hour was recorded in the Bombay suburbs. The main navigational harbour channel is, for the greater part, a natural deep water fareway. It has a depth of 9.9 m. at mean low water springs. The northern half of the channel has been deepened to 10 m. and the southern half has also been dredged. With a mean high water neep tide of 3.3 m. the channel is adequate to meet the requirements of the large number of cargo vessels, passenger ships and deep drafted tankers visiting the port.

Brief history of the Harbour[1] : Although the port of Bombay, as we know it today, is a comparatively modern creation, its magnificent harbour which is the key-stone of its prosperity has held a pride of place for centuries. As early as the beginning of the 17th century, though the trade of Bombay Islands, as the place was then known, was inconsiderable, the natural advantage of the harbour as a maritime base and a haven for shipping of the western sea-board of India were realised and there was considerable manoeuvring for its occupation. In 1652 Surat Council of the East India Company, realising the geographical advantages of the port, urged its purchase from the Portuguese. Their wish was gratified nine years later, when, under the Marriage Treaty between Charles II of Great Britain and the Infanta Catherine of Portugal, the port and island of Bombay were transferred to the King of Great Britain. In this treaty the place was primarily described as a port and it was as a port that the place developed in the next two hundred years.

In 1668 the port and island were transferred by a Royal Charter to the East India Company. The company immediately undertook measures for the encouragement of trade, such as the construction of a Custom House, a warehouse and a mole capable of berthing small ships. The port had good anchorage and was then described as the fairest, largest and securest in western parts of India, where a large number of ships could safely take refuge throughout the year. It became the first Port of call for the company's ships from Europe to Madras and Bengal. The 18th century saw the development of a flourishing ship building industry at the port. The first dry dock, projected so far back as in 1686, actually came into being in 1750. By 1811, four more dry docks, the largest having a capacity of 286 ft. by 63 ft. with a depth of 23 ft. were added. In 1775 the shipping facilities were described as " two marine gates with

[1] For a detailed history of the Harbour and Docks *see Gazetteer of Bombay City and Island*, Vol. I, 1909, pp. 47-64.

a commodious wharf and cranes built out from each gate, besides a landing place for passengers daily ". Extensive reclamations on the western foreshore of the harbour were commenced in 1858[1].

Upto 1813, the foreign trade of Bombay was a close preserve of the East India Company, but in that year the company's commercial monopoly was ended by an Act of the British Parliament. This resulted in a great spurt in the trade of the port. By 1835, the foreign trade of the port was valued at seven million pounds sterling.

The age of steam dated from about 1815. The first steamship to operate in Bombay waters was the *Hugh Lindsay* of 411 tons, which sailed on her maiden voyage to Suez on March 20th, 1830. By 1838 regular monthly communication between Bombay and England by the overland route *via* Suez and Alexandria was established, the period of the journey being 43 to 46 days. By 1843 Bombay had been brought within 30 days of London and two years later a fortnightly mail service was introduced.

The Table No. 12 shows the statistics of average number of ships entered and cleared from the port from 1801 to 1841.

The history of Bombay in the second half of the 19th century is a remarkable record of progress in every direction. Railway communication with the interior was opened up in 1853. Seven cotton mills commenced working between 1854 and 1860, steam coastal ferry services were inaugurated in 1866 and the opening of the Suez canal to traffic in 1869 revolutionised the maritime trade of Bombay. Meanwhile, the lack of proper dock accommodation was beginning to be felt severely.

In the following is given a description of various docks :

DOCKS

Sassoon Dock: This is the oldest wet dock of Bombay situated at Colaba which was opened for traffic in 1875. Formerly it was a small dock excavated out of solid rock and constructed by private enterprise. During 1875 it had a water area of only 1.4 hectares. It is a tidal dock, with a quay length of 430 metres served by an entrance of 12.2 metres width and 6 metres depth on sill HWOST[2]. It is maintained at 1.82 metres below Chart Datum. The original gates of this dock have been removed and it is now used as fish landing dock. Now it has a water area of $3\frac{1}{2}$ acres and limited facilities for five ships of 1000 tons. Its quayage is 1758 feet.

Prince's Dock : As the cargo and passenger vessels grew in size and draft, larger docks were needed, the Prince's dock, with a water area of 12.15 hectares capable of accommodating vessels of 6.4 metres draft was constructed in 1879 and opened for traffic on the 1st January 1880.

[1] For details *see* account of Reclamation in Chapter 1, and for detailed history, *see Ibid.*, pp. 64-70 (1909).

[2] HWOST—High Water Over Springs Tides.

TABLE No. 12

AVERAGE ANNUAL NUMBER OF SHIPS WHICH ENTERED AND CLEARED FROM THE PORT OF BOMBAY

Period	Entered						Cleared					
	Foreign		Coasting		Total		Foreign		Coasting		Total	
	Vessels	Tons	Vessels	Tons	Vessels	Tons	Vessels	Tons	Vessels	Tons	Vessels	Tons
1801 to 1810	58	29,640	66	27,435	124	57,075	72	36,205	60	23,684	132	59,889
1810 to 1820	81	37,890	38	13,593	119	51,483	67	33,672	51	18,201	118	51,873
1820 to 1830	116	51,137	27	10,721	143	61,858	97	44,875	45	16,284	142	61,159
1830 to 1841	165	74,620	37	13,400	202	88,020	157	70,679	56	19,824	213	90,503

There are 10 berths with a berthage of 1580 metres inside the wet basin and 3 berths with a berthage of 213.5 metres along the outer wall. The jetty is located at one end of the harbour wall with a berthage of 213 metres' length. It is served by an entrance of 20.1 metres and is maintained at 4.7 metres. Its depth is about 9 metres on sill HWOST. Bottom of the dock is 1 metre below the sill. The dock was constructed with a murum and puddled clay coffer dam, the rubble masonry being quarried at Elephanta. Granite was obtained from South Wales and the sand from Panvel river. The Merewether dry dock admeasuring 180 metres in length and 20 metres in width was added as part of this dock and opened in 1891. So rapid was the growth of Bombay's trade in 1880's that within 18 months of its opening, the Prince's dock was found insufficient to meet the needs of shipping. Vessels can also enter or leave this dock for about three hours before HW to HW. This dock is connected by a communication passage, and has a single pair of Mitro gates. It is a semi-tidal dock.

Victoria Dock : As the Prince's dock was found insufficient to meet the needs of the shipping, the Victoria dock with a water area of 10.12 hectares and a capacity to accommodate vessels of 7.3 metres draft was constructed in 1885-88. It has a quay length of 1725 metres in 13 berths, served by an entrance of 24.40 metres width and is maintained at 5.2 metres. The depth of this dock is 9.14 metres on sill HWOST. Bottom of dock is 3 feet below the sill. This is a semi-tidal dock, connected by a communication passage, and has a single pair of Mitro gates.

Indira Dock : With the growth of shipping and advent of vessels of deeper draft, the Prince's dock and the Victoria dock were found inadequate and accordingly, at the beginning of the present century, the Port Trust authorities decided to construct a new dock, the Alexandra dock* of larger size, with deeper berths. The work of construction of the new dock, to the south of Victoria dock was started after the monsoon of 1904. It took ten years to complete and its cost amounted to about Rs. 9 crores. It was opened on the 21st March 1914, almost on the eve of the First World War, the first ship to enter the dock being *S. S. Lhasa* of 2185 GRT†. It had a water area of 20 hectares, 17 berths in the wet basin and 6 berths along the harbour wall including three ferry wharf berths. It was equipped with an entrance lock admeasuring 228 metres in length and 30 metres in width, and the dock was designed to accommodate vessels drawing upto 9.14 metres of water in the wet basin. A second dry dock, called the Hughes Dry dock, admeasuring 304.8 metres in length and 30 metres in width and divisible into two compart-

* It was renamed as the Indira dock after Mrs. Indira Gandhi, Prime Minister of India, in 1972.

† GRT=Gross registered tonnage.

ments, was also constructed as a part of Alexandra dock, running parallel to the entrance lock.

The Ballard Pier, constructed at the same time as part of the Alexandra dock, was a southward extension of the west arm of the entrance lock and provided a 243.84 metres long berth for accommodating large passenger vessels, drawing upto 10.36 metres of water.

Besides the above mentioned four docks, there are government docks situated on the west side on the Harbour. These docks have an area of about $4\frac{3}{4}$ acres, entrance width of 60 feet and the depth of 23 feet on the sill HWOST. These docks are available only for the Government vessels.

Table Nos. 13, 14 and 15 show the number of vessels, which entered in the docks or were berthed at the harbour walls during the past few years.

TABLE No. 13

VESSELS ENTERED THE DOCKS OR BERTHED AT THE HARBOUR WALL, 1965-66 TO 1974-75

Year	Vessels which entered the Docks		Vessels berthed at the Harbour wall		Total vessels	
	No.	Net registered tonnage	No.	Net registered tonnage	No.	Net registered tonnage
1965-66	1806	90,06,192	416	16,93,867	2222	77,00,059
1966-67	1879	61,92,790	316	13,10,033	2195	75,02,823
1967-68	1701	56,00,751	316	13,20,121	2017	69,20,872
1968-69	1683	50,65,194	288	11,83,140	1971	62,48,334
1969-70	1591	50,52,688	229	10,12,539	1820	60,65,227
1970-71	1643	53,37,607	238	10,19,753	1881	63,57,360
1971-72	1633	53,42,185	248	11,13,366	1881	64,55,551
1972-73	1593	53,31,557	286	12,73,481	1879	66,05,038
1973-74	1512	53,10,842	270	11,44,530	1782	64,55,372
1974-75	1542	54,69,586	214	7,56,470	1756	62,26,056

TABLE No. 14

NUMBER AND TONNAGE OF VESSELS ENTERED THE PORT DURING 1973-74 AND 1974-75

Class of vessels	1974-75 No.	1974-75 Tonnage Gross	1974-75 Tonnage Net	1973-74 No.	1973-74 Tonnage Gross	1973-74 Tonnage Net
1	2	3	4	5	6	7
(*a*) Steam ships other than tankers:						
(1) Foreign—						
(*i*) above 3,500 GRT.	977	91,82,156	12,17,524	986	90,37,353	52,59,050
(*ii*) 3,500 GRT & less	268	4,74,216	2,38,753	212	3,85,450	1,93,712
(2) Coastal—						
(*i*) above 3,500 GRT.	124	11,40,438	6,88,343	123	9,94,153	5,51,842
(*ii*) 3,500 GRT & less	544	7,24,140	3,82,430	645	7,59,454	3,95,033
(*b*) Tankers ..	375	75,75,032	47,62,144	412	79,84,790	48,92,983
(*c*) Colliers ..	1	8,397	4,777	3	15,858	8,801
	2,299	191,04,379	1,12,83,971	2,381	19,77,667	113,01,430
(*d*) Sailing vessels:						
(*i*) Foreign ..	514	....	57,649	138	....	18,210
(*ii*) Coastal ..	11,130	....	4,23,035	23,699	....	5,35,618
Total ..	13,933	191,04,379	117,74,655	26,218	191,77,067	1,18,55,258

TABLE No. 15

NUMBER OF VESSELS (EXCLUSIVE OF FERRY STEAMERS), WHICH ENTERED THE DOCK OR WENT ALONGSIDE HARBOUR WALLS AND THEIR TONNAGE

Docks	1974-75 No.	1974-75 Tonnage Gross	1974-75 Tonnage Net	1973-74 No.	1973-74 Tonnage Gross	1973-74 Tonnage Net
Prince's Dock ..	364	11,60,544	6,21,820	270	10,20,217	5,65,096
Victoria Dock ..	365	10,59,789	5,58,902	478	14,37,881	7,65,819
Indira Dock ..	813	74,54,314	42,88,864	764	68,06,521	39,79,927
Prince's Dock, Harbour Wall (K.L.M. berths). ..	..	..	..	1	1,161	481
Victoria Dock Harbour Wall (Nos. 14 & 15 berths).	2	1,776	913	8	21,750	11,172
Indira Dock, Harbour Wall (Nos. 18, 19, 20, 21, 22 and 23 including Tank Steamers).	212	14,84,499	7,55,557	261	19,78,151	11,32,877
Ballard Pier ..	272	21,30,104	11,59,601	263	22,94,900	13,24,569
Butcher's Island Berths Nos. 1, 2 and 3.	366	76,18,944	45,08,397	398	77,64,678	52,48,198
Pir Pau Oil Pier ..	30	3,22,831	1,89,294	41	4,79,563	2,76,910
Total ..	2,424	2,1232,801	120,83,258	2,484	218,04,822	133,05,049

Note.—Many of these vessels had entered a Dock or berthed alongside a Harbour wall more than once during their stay in port.

Capacity of the Port : The cargo handling capacity of the Bombay port is 16.45 million tonnes. Details regarding the cargo handling capacity of the docks, marine oil terminal including Pir Pau and bunders or open wharves are given in the following statement:—

Dock	Cargo handled	Capacity in million tonnes
1	2	3
(1) Indira dock	General cargo ..	4.55
(2) Prince's and Victoria docks	General cargo ..	2.20
(3) Marine oil terminal including Pir Pau ..	Petroleum products	9.00
(4) Bunders or open wharves	General cargo ..	0.70
	Total ..	16.45

Berths outside the docks : The deep water berths outside the docks are as shown in the following statement:—

(Figures in Metres)

Berth	Depth maintained below Datum of soundings	Depth below mean high water spring tides	Length of quayage
1	2	3	4
(1) Ballard Pier	9.14	13.56	244
(2) Ballard Pier extension ..	10.36	14.78	231.6
(3) Ferry terminal	4.89	9.19	340.17 (Three berths along harbour wall of Prince's dock and one berth offshore.)
(4) Pir Pau Oil Pier	8.84	13.26	174
(5) Marine Oil terminal, Butcher's Island ..	10.97	15.39	(Three berths each for 198 metres long tankers).

Marine Oil Terminal : One berth at Pir Pau Oil Pier at north end of harbour where tankers upto O.A. length of 560 feet with draft 27 feet handle white oil. Pipeline system handling 150-200 tons per hour connects the pier to refineries at Trombay and installations at Wadala and Sewri. Three berths in Indira dock are provided for handling non-dangerous petroleum including kerosene and black oils. Marine oil terminal at Butcher's Island

provides three berths for tankers upto 700 feet in length and is connected to oil refineries at Trombay by submarine pipelines. Tankers upto 800 feet in length, could be accommodated if adjacent berths are occupied by medium size tankers. Tonnage and draft restrictions at these three berths are shown below:—

Berths	Draft	Tonnage
No. 1 Butcher's Island ..	38′—05″	Displacement tonnage 70,000 tonnes.
No. 2 Butcher's Island ..	36′—06″	Displacement tonnage 48,000 tonnes.
No. 3 Butcher's Island ..	38′—00″	Displacement tonnage 70,000 tonnes.

Dry Docks : The Bombay Port Trust owns two major dry docks *viz.*, the Hughes dry dock and the Merewether dry dock which are connected to the Indira dock and the Prince's dock, respectively. Besides, there are eleven other dry docks within the limits of the port, the details of which are given in Table No. 16.

TABLE No. 16

DRY DOCKS IN BOMBAY PORT

Dry docks and their ownership	Overall length (in feet)	Entrance width (in feet)	Depth on sill at HWOST (in feet)
1	2	3	4
Government—			
(1) Lower Bombay ..	256	51	16½
(2) Middle Bombay ..	183	51	16¼
(3) Upper Bombay ..	200¾	46	14½
(4) Lower Duncan ..	316½	59	24
(5) Upper Duncan ..	302½	59	24
(6) New Torpedo ..	160	25	12
(7) Hughes (Port Trust) ..	1,000	100	36¼
P. and O. S. N. Company—			
(1) Old Mazgaon ..	154	55	5
(2) Ritchie ..	493	66	18
B. I. S. N. Company—			
(1) Mogul Lower ..	217	60	18
(2) Mogul Upper ..	196	47	15½
(3) Merewether (Port Trust)	525	65½	28¼
(4) Patent Slip ..	250	25½	12½

The following table No. 17 shows the tonnage handled and vessels docked in the Merewether and the Hughes dry docks since 1965-66 to 1974-75.

TABLE No. 17

NUMBER AND TONNAGE OF VESSELS DOCKED IN THE MEREWETHER AND HUGHES DRY DOCKS

Year	Merewether Dry Dock		Hughes Dry Dock		Total	
	No. vessels	Gross tonnage	No. vessels	Gross tonnage	No. vessels	Gross tonnage
1965-66	53	77,519	61	3,26,492	114	4,04,011
1967-68	70	1,18,304	62	3,44,665	132	4,62,969
1970-71	56	1,02,586	72	4,00,253	128	5,02,839
1972-73	53	1,04,342	56	3,19,184	109	4,23,526
1973-74	47	89,530	62	4,45,706	109	5,35,236
1974-75	60	1,32,298	56	3,19,704	116	4,52,002
1975-76	56	82,990	68	5,04,001	124	5,86,991
1980-81	54	93,280	50	3,46,470	104	4,39,750
1981-82	48	55,694	34	1,83,838	82	2,39,532
1982-83	48	68,044	31	1,78,618	79	2,46,662
1983-84	60	72,727	39	2,12,068	99	2,84,795

Dock Expansion Scheme : The main features of the Dock Expansion Scheme, which is a truncated version of the dock modernization scheme are as follows:—

(*i*) The east arm of the Indira dock basin to be extended by 300 metres, so as to provide four new deep water berths;

(*ii*) The strip of land remaining between the extended arm of the Indira dock and the Victoria dock to be used for diverting rail and road communications and other underground services intercepted by the extension;

(*iii*) The excavated material from the extended arm to be used for filling up a part of the Carnac basin and for reclamation of the area east of it;

(*iv*) The ferry traffic to be transferred from its existing location at the Indira Dock Harbour Wall to the Prince's Dock Harbour Wall (KLM berths);

(*v*) The existing ferry berths to be dredged to provide cargo berth of medium depth (7·93 metres);

(*vi*) Five modern transit sheds to be constructed in the Indira dock.

(*vii*) A dredger berth constructed of concrete blocks realised from the temporary coffer-dam and two barge berths of similar construction to be provided at the northern end of the reclamation [referred in item (*iii*) above]; and

(*viii*) Two inside berths at Prince's dock to be converted into ship repair berths.

The scheme is estimated to cost Rs. 15.23 crores and will result in an addition of 1.5 to 2.0 million tons dry cargo handling capacity annually at this port. The four new berths in the extended basin of Indira dock were completed in 1969. A new ferry wharf of the Prince's dock was put into commission immediately after the monsoon of 1969.

Ballard Pier extension : Along with the Dock Expansion Scheme, the Port Trust also undertook a scheme of extending the Ballard Pier southwards by 231.6 metres so as to provide a second passenger berth of the Mole station, equipped with a spacious, modern passenger terminal building, the existing Ballard Pier building being reconstructed and converted into a cargo handling shed capable of handling passengers when required. Consequent on the closure of the Suez Canal after the Israel-Arab hostilities in 1967, the growing competition of the air-lines and the exodus of people of Indian origin from the East African countries, it was apprehended that the overseas passenger traffic of the Bombay Port, which had already been declining for some years, was not likely to revive in the foreseable future. It was accordingly decided that the new terminal building on the extended berth should be redesigned on a modest scale as a passenger-*cum*-cargo handling facility, the existing building being reconstructed and converted into a full-fledged cargo handling shed. The revised scheme for the extension of Ballard Pier is in progress. The estimated cost of the scheme is Rs. 6·50 crores.

Equipment : There are 55 hydraulically operated movable cranes of 1½ to 6 tons capacity in the Prince's dock. Besides, there are ten capstans of 11 ton capacity for warping vessels at the entrance of the Prince's dock and oil pipelines are connected at six berths and at Harbour wall of the Prince's dock for bunkering. The Victoria dock has 60 hydraulic movable cranes, four 11 ton capstans and oil connections to nine berths. The Indira dock has 90 electric cranes. It has also fourteen 11 ton and ten 2½ ton capstans. All berths of the Indira dock have oil pipeline connections.

Storage : There are six sheds (with an area of 75,300 sq. metres) and four warehouses (6,800 sq. metres) at the Prince's dock. The Victoria dock has 6 sheds (33,100 sq. metres) while, the Indira dock has 16 sheds (1,35,600 sq. metres) and three warehouses (37,800 sq. metres). In addition there is a large four-storeyed warehouse at Indira dock for cargo awaiting clearance with stacking area of 17,500 sq. metres.

In addition there are a few warehouses outside the dock having an area of 54,000 sq. metres. All multi-storeyed sheds and warehouses have either hydraulically or electrically operated hoists.

Plan Expenditure on Port: The following statement shows the plan provision, actual expenditure and percentage of actual expenditure to plan provision on Bombay Port during various five-year plans:—

(Rs. in crores)

Plan	Plan provision	Actual expenditure	Percentage of actual expenditure to plan provision
1	2	3	4
1. *First Five-Year Plan*—			
(1951-52 to 1955-56)	22.82	10.92	47.9
2. *Second Five-Year Plan*—			
(1956-57 to 1960-61)	25.18	5.22	20.7
3. *Third Five-Year Plan*—			
(1961-62 to 1965-66)	25.53	12.94	50.7
Annual Plans—			
4. 1966-67	13.11	4.69	35.8
5. 1967-68	10.28	5.60	54.5
6. 1968-69	9.48	9.01	95.0
7. Fourth Five-Year Plan (1969-74) ..	46.14	....	....
Mid-term appraisal (1969-74) ..	22.70	16.96	....
Year-wise break-up—			
1969-70	4.69	4.69	
1970-71	3.48	3.48	
1971-72	3.96	2.29	
1972-73	5.94	2.42	
1973-74	4.63	4.08	
8. Fifth Five-Year Plan,			
Original (1974-79)			
Revised (1974-78) ..			
Annual Plan: 1974-75	2.99	1.66	
1975-76	6.50	1.68	
1976-77	5.99	1.83	
1977-78	6.86	2.69	
9. Annual Plan, 1978-79	7.54	8.46	
10. Annual Plan, 1979-80	8.37	1.18	
11. Sixth Five-Year Plan (1980-85) ..	68.73	....	
12. Annual Plan, 1980-81	21.01	8.07	
13. Annual Plan, 1981-82	17.91	8.63	
14. Annual Plan, 1982-83	23.55	18.30	
15. Annual Plan, 1983-84	46.20	23.05	

Bunders : In addition to docks mentioned above, there are along the harbour front, what are known as, bunders or open basins with jetties serving sailing vessels. These cover an area of 55.44 hectares and provide an aggregate quayage of 12,500 metres. These bunders are: (1) the Jamshetji, (2) the Apollo, (3) the Carnac-Mody, (4) the Malet, (5) the Kassara, (6) the Lakdi, (7) the Coal, (8) the New Tank, (9) the Brick, (10) the Hay, (11) the Haji, (12) the Sewri, (13) the Chaupati, (14) the Worli and (15) the Mahim. Under the Customs Act, 1963, the bunders or jetties are

notified for the landing and shipping of certain types of commodities. Broadly speaking, building material and fuel oil are handled at the bunders in the north; sand, chunam, bamboos, timber and fire wood at Lakdi bunder; tiles at New Tank bunder; bricks and clay at Brick bunder and coal at Coal bunder. Non-dangerous fuel oils such as diesel oil, kerosene and lubricating oils are shipped from Kassara and Sewri bunders and petrol from Sewri Petrol Wharf. Hay and grass are discharged at New Tank bunder. The extensive timber ponds at Sewri, covering an area of over 24.28 hectares, form an important feature of the bunders.

Frere basin, to the north of Prince's dock, since its development in 1949-50 for lighterage traffic, has become an important adjunct to the docks.

Lighthouses : Lighthouses in general are beacons of light to guide the marine for indicating the coastline, approaches of harbour, marking major shoals and rocky areas.

The lack of proper guidance to shipping entering the harbour had been a matter of complaint for a long time. There is no record of the Portuguese having created any distinctive guiding points and for about a century after the advent of the English, the only landmarks for shipping for finding the entrance of the harbour were a few tombs at Colaba and a house on Mazgaon hill known as a Mark House which was kept regularly white-washed so as to be visible to shipping*. A lighthouse was erected on Old Women's island (Colaba) on a natural mound, probably on the ruins of an old Portuguese watch-tower, in 1768-71 and the lighting apparatus was improved in 1799-1800 and again in 1844. The Colaba Lighthouse, as it later came to be known, was the first major lighthouse in British India and the only one of its kind till 1844 when the Madras Lighthouse was completed. In 1842, the Outer Floating Lightship " Colaba, " specially built to mark the fairway to the entrance of the harbour, was placed in position and in the next year, the " Shenon ", which was originally built as a war brig in 1832, and converted into a Light vessel, took up station as the Inner Light vessel near Sunk Rock (The object of guarding the Sunk rock is now served by the unattended lighthouse constructed on the rock in 1884). In 1852, a beacon was constructed on Kennery Island, this was demolished almost immediately afterwards as, due to its similarity to the Colaba Lighthouse, or from inadequate publicity being given to its construction, it was reported to have caused the wreck of two vessels. In 1856, a lighthouse or more correctly a beacon, was constructed on Dolphin Rock. The Kennery (Khanderi) Island Lighthouse was constructed in 1867. The construction of Kennery lighthouse has achieved its purpose as the frequency of ship wrecks at the entrance of the harbour was considerably reduced

* *The Port of Bombay—A Brief History*, Publication of Bombay Port Trust, p. 21.

thereafter. The Colaba Lighthouse which had become obsolete, was later replaced by a new and taller lighthouse, constructed more to the seaward, on south-west Prong. The Prongs Lighthouse as it is called, was constructed by the Government at its own cost during the period 1870-75.[1]

The foundation for the lighthouses depends upon their location. Some lighthouses are located on islands formed of hard rock while there are lighthouses which are constructed near the shore, the foundation of which depends upon the soil conditions. There are five lighthouses and two beacons within the jurisdiction of the Bombay Port. They are as follows:--

Lighthouse or Beacon	Position
(1) Kennery Lighthouse ..	18° 42.1′ N 72° 48.8′ E.
(2) Prongs Lighthouse ..	18° 52.7′ N 72° 48.0′ E.
(3) Bombay Floating Lighthouse ..	18° 49.51′ N 72° 44.5′ E.
(4) Sunk Rock Lighthouse ..	18° 53.4′ N 72° 50.0′ E.
(5) Dolphin Lighthouse ..	18° 54.8′ N 72° 50.2′ E.
(6) Tucker Beacon ..	18° 56.0′ N 72° 52.5′ E.
(7) Butcher Beacon ..	18° 56.8′ N 72° 54.3′ E.

Of the above mentioned lighthouses and beacons the first two are the major and manned lighthouses while others are unmanned lighthouses.

Explosions in the Port : On the 14th April 1944 the Bombay Port experienced a major disaster from two explosions in an ammunition ship berthed at No. 1, Victoria dock. The unlucky ship was the *S.S. Fort Stikine*, which carried 1,200 tons of high explosives and ammunition together with a cargo of cotton bales. Transit sheds, warehouses and other structures in Prince's and Victoria docks were set ablaze and razed to the ground, and port equipment including cranes, hydraulic gear, water mains, rail tracks, etc., were reduced to twisted and tortured heaps of steel and rubble. An area of 100 acres adjacent to the Victoria and Prince's docks was gutted; fragments of blazing steel weighing upto 100 tons travelled laterally at incredible velocities, spreading death and destruction in their paths. The actual seat of the explosions revealed two huge craters and hundreds of feet of shattered quay wall. The loss in human life was appalling. The explosion took a toll of 231 lives, apart from injuring about 476 others.

Another explosion occurred on the 28th June 1972 at the harbour wall of the Indira dock. It occurred on the *M. V. Tarsos*, a Libarian tanker resulting in 30 persons being killed and 21 being injured. Most of the dead and the injured were employees of M/s. Mazagon Dock Ltd., and of the Bombay Dock Labour Board.

[1] For detailed history *see Gazetteer of Bombay City and Island*, Vol. I, 1909, pp. 57-64.

Employment in Bombay Port : The Port is one of the largest employers in Bombay, having on its pay roll 30,895 employees of various categories. Following statement shows the number of persons engaged in Bombay Port in 1975-76:—

1.	Class I and II	472
2.	Class III (other than wharf crane drivers)	11,378
3.	Class IV (other than piece rated shore workers)	12,580
4.	Wharf crane drivers	577
5.	Piece rated shore workers—	
	(*i*) Category 'A'	4,702
	(*ii*) Category 'B'	1,186
	Grand Total ..	30,895

SHIPPING

Goods Traffic : There has been a continuous rise in the traffic handled by the Bombay Port. This rise has been more pronounced with the setting up of the two oil refineries at Bombay and the commissioning of the Marine Oil Terminal in 1954-56. The traffic handled at this port in 1950-51 was 7.44 million tons which rose to 18.4 million tons in 1973-74.

The table No. 18 shows the goods traffic of the Port for the last few years.

TABLE No. 18

GOODS TRAFFIC AT BOMBAY PORT

(figures in '000' D. W.tonnes)

Year	Import	Export	Total
1945-46 ..	4,621	1,932	6,553
1951-52 ..	5,900	1,700	7,600
1961-62 ..	10,413	4,135	14,540
1966-67 ..	13,227	5,039	18,266
1969-70 ..	11,434	3,601	15,035
1972-73 ..	12,319	3,221	15,540
1974-75 ..	13,861	3,866	17,727
1980-81 ..	13,277	4,294	17,571
1982-83 ..	11,499	13,602	25,101
1983-84 ..	10,748	13,993	24,741

The table No. 19 shows the total cargo handled at docks and bunders of Bombay Port.

Passengers' Traffic (Overseas and coasting communications) : The overseas communication from the Bombay Port is carried with the ports in Europe, Red Sea, Australia, East Asian countries, East Africa, South Africa, Persian Gulf, America and Jeddah, Karachi and Colombo while the coasting communication is done with the ports on West Coast, Saurashtra, Cutch and East Coast of India. Table No. 20 shows the overseas and coasting routes with their inward and outward passenger traffic during 1970-71 and 1974-75.

TABLE No. 19

CARGO HANDLED AT DOCKS AND BUNDERS DURING 1969-70 TO 1974-75

(Figures in '000' D.W. tonnes)

Year	Imports			Exports			Total tonnage of Imports and Exports		
	Docks	Bunders	Total	Docks	Bunders	Total	Docks	Bunders	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1969-70	42,67,791	71,65,814	1,14,33,605	18,72,122	17,29,414	36,01,536	61,39,913	88,95,228	1,50,35,141
1970-71	35,63,499	72,94,993	1,08,58,492	20,18,997	15,26,537	35,45,534	55,82,496	88,21,530	1,44,04,026
1971-72	42,02,958	82,22,602	1,24,25,560	17,50,680	19,56,274	37,06,954	59,53,638	1,01,78,876	1,61,32,514
1972-73	39,62,529	83,56,160	1,23,18,689	17,05,780	15,15,766	32,21,546	56,68,309	98,71,926	1,55,40,235
1973-74	48,22,657	94,23,409	1,42,46,066	19,65,757	22,51,079	42,16,836	67,88,414	1,16,74,488	1,84,62,902
1974-75	52,06,142	86,55,131	1,38,61,273	18,56,836	20,10,229	38,67,065	70,61,978	1,06,65,360	1,77,27,338

TABLE No. 20

NUMBER OF PASSENGERS ARRIVED AND DEPARTED FROM BOMBAY PORT EXCLUSIVE OF PASSENGERS CARRIED BY HARBOUR FERRIES AND SAILING VESSELS

Serial No.	Routes	Inward						Outward					
		Saloon		Dock		Total		Saloon		Dock		Total	
		1970-71	1974-75	1970-71	1974-75	1970-71	1974-75	1970-71	1974-75	1970-71	1974-75	1970-71	1974-75
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Overseas—												
1	Europe (U. K. Ports, Geneva, Marseilles and other ports).	2,569	201	..	..	2,569	201	1,750	505	..	..	1,750	505
2	Red sea Ports (Aden, Djibonti, Assab, Massawa, Port Sudan excluding Jeddah).	183	57	1,259	1,331	1,442	1,388	55	..	1,005	..	1,060	..
3	Jeddah (Pilgrims) ..	659	772	14,274	15,786	14,933	17,260	578	907	10,681	12,285	11,259	18,192
4	Karachi	10	185	..	417	10	602	28	1	..	..	28	1
5	Colombo	11	1,300	..	..	11	1,300	9	1,201	2	..	11	1,201
6	Australia (Brisbane, Sydney, Melbourne).	35	11	..	..	35	11	40	12	..	..	40	12

7	Far East (including Singapore, Bangkok, Hong Kong and Japan).	17	77	..	804	17	881	100	724	207	551	307	1,275
8	Africa East (Mombassa, Zanzibar, Dare-salam, Mozambique, Beira and Loureneo Marques).	3,536	651	8,074	2,225	11,610	2,876	2,018	259	4,787	1,946	6,805	2,205
9	Africa South (Durban, Grahamstone, Port Elizabeth, Cape Town and Moossel Bay).	1,886	785	1,691	1,034	3,557	1,819	934	857	2,215	2,480	3,149	3,337
10	Persian Gulf (Khoromshahr, Minal Ahmadi, Abadan, Ras Tanura, Bahrein, Dubai, Doha, Bandur, Mashurs and Basarah).	1,571	468	17,783	17,651	19,354	18,119	1,415	1,831	25,788	30,357	27,203	32,188
11	America (San Fransisco, New York, Vancouver, Boston, Montreal and Houston).	387	53	..	..	387	53	60	18	2	..	62	18
12	Other Ports	..	671	..	246	..	917	..	231	..	..	..	231
	Total Overseas ..	10,864	5,231	43,081	39,484	53,925	44,715	6,987	6,566	44,687	52,649	51,674	59,165

TABLE No. 20—*contd.*

Serial No.	Routes	Inward						Outward					
		Saloon		Dock		Total		Saloon		Dock		Total	
		1970-71	1974-75	1970-71	1974-75	1970-71	1974-75	1970-71	1974-75	1970-71	1974-75	1970-71	1974-75
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	Coasting—												
13	Konkan Coast (Janjira, Shriwardhan, Harnai, Dabhol, Jaigad, Ratnagiri, Vijayadurg, Malvan and Panjim).	6,072	3,613	2,24,710	74,428	2,30,782	78,041	6,500	4,139	2,42,185	81,786	2,48,685	85,925
14	West Coast (Karwar, Mangalore, Calicut, Cochin and Tuticorin.)	42	318	5	..	47	318	10	..	3	..	13	..
15	Saurashtra-Cutch ports and Other ports.	27	8	4	..	31	8	19	19	5	..	24	19
16	East Coast of India (Calcutta and Madras).	18	..	..	..	18	..	24	..	11	..	35	..
17	Other ports	..	167	..	..	..	167	..	..	..	..	..	..
	Total Coasting ..	6,159	4,106	2,24,719	74,428	2,30,878	78,534	6,553	4,158	2,42,204	81,786	2,48,757	85,944

Formerly the coastal passengers' traffic was done by the Chougule Steamships, Bombay. It had stopped its passenger carrying business after the shipwreck of *Rohini* at Malvan Port in 1972. Afterwards the Government of India gave a right of sailing passengers' vessels on Konkan coast to Mogul Lines in 1973. It sails ships from Bombay to Panjim *via* Jaigad, Musakaji/Jaitapur, Vijaydurg and Deogad except in monsoon.

The following statement shows the passenger traffic on the Bombay-Panjim route:—

Year	No. of passengers travelled	Earnings (Rs.)
November 1973 to March 1974 ..	1,57,712	36,40,299
1974-75 ..	1,89,868	65,94,113
1975-76 ..	1,70,892	61,46,501
1980-81 ..	2,37,831	N.A.
1981-82 ..	2,73,123	N.A.
1982-83 ..	2,35,087	N.A.

SHIPPING CORPORATION OF INDIA LTD.

The Shipping Corporation of India was formed on 2nd October 1961, by the amalgamation of the two public sector shipping companies, *viz.* the Eastern Shipping Corporation Ltd., and the Western Shipping Corporation Ltd. The Shipping Corporation started with 19 ships with 1.39 lakhs GRT, which was made up predominantly of cargo liners. Since then, it has greatly expanded and diversified its fleet in keeping with the country's requirements and the changing pattern of India's international trade, and today (15th July 1984) it owns a fleet of 143 vessels of 30.25 lakhs GRT (50.28 DWT*) comprising 73 dry cargo vessels, 23 bulk carriers, 10 combination carriers, 2 colliers, 6 passenger-*cum*-cargo vessels, 2 timber carriers and 2 others. Besides, 19 vessels with a 8.66 lakhs GRT capacity have also been ordered from shipyards in India and abroad. The Corporation has prepared a plan for further expansion of the fleet by 316 vessels from Hindustan Shipyard.

The Jayanti Shipping Co. was amalgamated with the Corporation on 1st January 1973 with its 16 ships with a total GRT of 2.93 lakhs (4.32 lakhs DWT). Further the Mogul Lines Ltd. was also amalgamated with the Shipping Corporation in August 1984 with its 21 ships of 4.03 lakhs GRT. With the merger of Mogul Lines Ltd., the Shipping Corporation consisted a fleet of 168 ships with a total GRT of 35.41 lakhs.

The Corporation operates cargo services on all the major cargo liner routes in which the sea borne trade of India moves, *viz.*, USA, USSR, Europe, Africa, Japan and Australia. Besides the services of its own, the Corporation also manages the vessels of Government of India, plying between India Mainland-Andaman Nicobar and Laccadive Islands,

*DWT=Dead Weighted Tonnage (Penny Weight)

as also the dredger fleet operating on the Indian coast, and acts as agent for some of the public sector organisations and foreign shipping lines.

The Corporation is the largest shipping company in India and over 47 per cent of the total Indian merchant fleet is under its management. Operating a network of worldwide shipping services, it has helped considerably in promoting the exports of the country and in earning valuable foreign exchange.

The table No. 21 shows the details of various Indian shipping companies located in Bombay.

TABLE No. 21

SHIPPING COMPANIES LOCATED IN BOMBAY (as on 1st January 1977)*

Name of Shipping Company	Total No. of ships owned and GRT			
	Coastal		Overseas	
	Number of ships	Tonnage (GRT)	Number of ships	Tonnage (GRT)
(1) Shipping Corporation of India Ltd., Bombay.	18	1,60,795	115	23,61,746
(2) Scindia Steam Navigation Company Ltd., Bombay.	2	9,900	46	5,77,495
(3) Great Eastern Shipping Company, Bombay.	1	11,066	19	4,28,038
(4) Mogul Lines Ltd., Bombay ..	8	67,418	11	1,47,787
(5) Dempo Steamships, Bombay ..	..	..	7	1,32,225
(6) Chougule Steamships, Bombay ..	1	10,525	4	1,20,292
(7) Damodar Bulk-Carriers, Bombay ..	..	..	5	1,29,323
(8) Seven Seas Transportation, Bombay ..	..	..	4	84,290
(9) Surendra Overseas Ltd., Bombay ..	..	..	6	50,902
(10) South-East Asia Shipping Company, Bombay.	4	22,995	3	24,931
(11) Pent Ocean Steamships, Bombay ..	1	7,659	3	22,973
(12) Tolani Shipping, Bombay ..	2	15,748	1	11,296
(13) Mackinnon Mackenzie, Bombay ..	..	..	2	23,560
(14) Malabar Steamships	3	10,336	1	10,132
(15) Thakur Shipping Company ..	2	5,993	1	12,678
(16) Varun Shipping Company ..	1	12,808	..	..
(17) Indoceanic Shipping ..	..	..	2	5,682
(18) Africana Company	3	5,663	..	..
(19) Western Star Lines Private Ltd. ..	..	..	1	2,359
(20) Hind Shipping Company ..	1	2,348	..	..
(21) Allana Sons Private Ltd. ..	..	..	1	2,359
(22) Bombay Marine Engineering Private Ltd.	1	2,216	..	..
(23) Sudarshan Liner Ltd., Bombay ..	..	..	1	1,765
(24) John F. Fidele and Company ..	2	999	..	..
(25) Mangala Bulk Carriers, Bombay ..	1	402	..	..
(26) Maini Shipping Company, Bombay	1	3,944	..	..

* Details of various shipping companies located in Bombay as on 30th September 1984 are given at the end of this chapter. (*Source:* Directorate of Shipping, Bombay.)

MINOR PORTS*

There are four minor ports within the jurisdiction of the Greater Bombay municipal limits *viz.*, Versova, Bandra, Manori and Trombay which mainly facilitate the transportation of goods by country crafts, and small boats. Cargo is loaded and unloaded by lorries, lighters, barges or by head loads. These minor ports lack berthing facilities and the existing one admit only of small tonnage. These ports are, however, well connected to the hinterland by roads and railways. Following is the brief description of these ports.

Versova : This port is located on the shore of Malad creek on Arabian sea roughly 16 km. north of Bombay harbour. It is located on 19°.08′ 20″ N. latitude and 72°.48′ 12″ E. longitude. A custom house is provided at this port. Two ramps are also provided on either sides of the creek for ferry boats. A good black-topped road (*i.e.* Jai-Prakash road) starts from Andheri railway station and terminates at this port. Draft available at this port is 3 metres in the creek and 2 metres at the landing places of *padavas*.

The navigational aids include (*a*) flashing age light exhibited on a flag mast near the custom office and Madh Island, (*b*) a flag staff near the custom office, (*c*) an unlighted Hervey Patch buoy located at the entrance of the creek and (*d*) rock marking guide poles near the creek. The following statement shows the passenger traffic and the cargo handled at this port during 1970-71, 1972-73, 1974-75, 1975-76 and 1977-78 :—

Year	Passenger traffic			Cargo handled (in tonnes)		
	Embarked	Disembarked	Total	Import	Export	Total
1970-71 ..	N.A.	N.A.	N.A.	3,233	36	3,269
1972-73 ..	N.A.	N.A.	N.A.	4,064	4	4,068
1974-75 ..	3,19,696	3,23,178	6,42,874	778	15	793
1975-76 ..	2,56,311	2,55,520	5,11,831	350	13	363
1977-78 ..	N.A.	N.A.	N.A.	229	2	231

Bandra : It is located on 19°.03′ 20″ N. latitude and 72°.49′ 34″ E. longitude just north of the Bombay Island harbour. There is a port office and a custom office at the ferry wharf on this port. A good black-topped road connects this port with the Bandra station.

Two metres drafts are located at 1/5th mile off shore of the port. Among the navigational aid mention may be made of Ureshi Beacon Light located at Khar Danda near the port, and two rock marking poles one each at Khar Danda and Chimbai. The following statement shows the passenger traffic at this port during 1974-75 and 1975-76 :—

Year	Passenger traffic		
	Embarked	Disembarked	Total
1974-75	5,323	4,400	9,723
1975-76	5,555	5,529	11,084

**Source.*—Chief Ports Officer, Maharashtra State, Bombay.

Manori : This port is located at the mouth of the Manori creek near the Manori village about 6·5 km. west of the Malad railway station. There is a port office and a custom office at this port. Bus service facility is available upto Malad railway station. There are four jetties attached to this port, belonging to the Bombay Municipal Corporation. Draft of one metre on the bar at the entrance and 3 metres in the creek are available at this port.

There is a rock marking pole at the Manori village. Passenger traffic from this port in 1974-75 and 1975-76 is given below:—

Year	Passenger traffic		
	Embarked	Disembarked	Total
1974-75	1,28,000	1,21,500	2,57,500
1975-76	1,32,600	1,50,200	2,82,800

Trombay: This is also an important minor port located to the north of the Bombay Port. The nearest railway station for this port is Mankhurd. There are fish drying platforms with approach roads and a Catwalk jetty at this port. Draft of one metre is available at this port at the landing place.

The following statement shows the cargo handled from this port in 1969-70, 1970-71, 1972-73, 1974-75, 1975-76 and 1977-79:—

Year	Cargo handled		
	Import	Export	Total
1969-70	1,214	8,069	9,283
1970-71	113	22,941	23,054
1972-73 ..	17	17,589	17,606
1974-75	....	9,303	9,303
1975-76	....	12,708	12,708
1977-79	....	11,800	11,800

FERRY SERVICES

The ferry wharf off Prince's Dock harbour wall is popularly known as " Bhaucha Dhakka " from where nearly half a million coastal passengers are carried annually. New wharf was constructed in 1972. Besides the ferry services to Konkan, west and east coast of India, many local ferry services (launch services) are operated frequently from *Bhaucha Dhakka* to Uran, Alibag and Elephanta. The details of three importan ferry services *viz.*, the Versova-Madh ferry service, the Marve-Manor ferry service and the Gorai creek ferry service are given below:

Versova-Madh Ferry Service : This ferry service is managed by M/s. Versova Machhimar Sahakari Sangh Ltd. since 1963. Before 1963 the Bombay Municipal Corporation was managing the same. There are two motor launches with a load carrying capacity of 4.86 tons and 3.48

tons, respectively. The number of persons travelled per day is about 1000, while the quantity of goods carried per day is about 10 tons.

Marve-Manori Ferry Service : The Manori Machhimar Vividh Karyakari Sahakari Society Ltd. is operating its man-driven ferry boats between Marve and Manori. The number of persons travelled per day is 1,500 approximately.

Gorai Creek Ferry Service : The Bombay Municipal Corporation has given a contract to a private ferry service for operating ferries in the Gorai Creek.

Bombay Harbour Launch Services : The Bombay harbour launch services operated from *Bhaucha Dhakka* on the outside harbour wall of the Prince's dock are managed by the "Port Organization" of the Maharashtra Government. In 1976 about twelve launches were operating on Mora-Bombay route with 22 schedules from Mora and 22 schedules from Bombay, and about eleven launches were operating on Rewas-Mandwa-Dharamtar-Bhal route. There were 14 schedules on the Bombay-Rewas-Mandwa-Dharamtar-Bhal route. The services for Rewas-Mandwa-Dharamtar-Bhal or Akkadevi are seasonal *i.e.* from September to May.

The following statement shows the statistics of passenger traffic of the Bombay harbour launch services from 1974-75 to 1982-83:—

Year	Passenger Traffic		
	Embarked	Disembarked	Total
1974-75	5,44,829	6,32,120	11,76,949
1975-76	6,41,022	5,60,981	12,02,003
1980-81	1,16,074	1,21,757	2,37,831
1981-82	1,34,568	1,38,554	2,73,123
1982-83	1,14,867	1,20,219	2,35,086

PUBLIC TRANSPORT

STATE TRANSPORT

After the World War I, the automobile vehicle was introduced as a principal mode of road transport. Its importance in the field of passenger transport grew rapidly during and after the World War II. Consequently a number of private passenger transport services came into existence. However, the keen competition among them resulted in the duplication of services and disregard of rules for the safety of passengers and speed limit. Profit maximisation being the sole object, attention to the passengers in respect of convenience and amenities was hardly given. Moreover, relations between employees and employer were always strained and uncordial.

The state of affairs which was incompatible with the very notion of a Welfare State, could not be allowed to continue. To set the matters

right, Government decided to nationalize passenger transport in the State in August 1947 and, initially the services were started departmentally in June 1948, the administration of which was subsequently handed over to a statutory corporation in December 1949 under the provisions of the Road Transport Corporation Act (XXXII of 1948). Since then, the corporation has been reconstituted under the Road Transport Corporation Act LXIV of 1950.

At present (1985) the whole State is divided into twenty-seven viable units called divisions. The transport services from Bombay are provided by the Palghar Division. The Divisional Controller, Palghar Division, Parel, controls the activities of State Transport in Bombay.

Operation of any transport service in Greater Bombay district does not come within the purview of the Corporation as these are run by the Municipal Corporation of Greater Bombay. Two depots and two bus stations are situated at Bombay Central and Parel, respectively. The Bombay bus station and Bombay depot originally came under the erstwhile Bombay Division, the headquarters of which was situated at Tardeo. The headquarters of the division was shifted to Thane in 1957 and the division was renamed as Thane Division.

Stations : A modern bus station has been provided at Bombay Central on the ground floor of the Central Office building. The bus station occupies the ground floor and a part of the first floor covering an area of about 16,500 sq. ft. Six loading platforms are provided to this station which are connected with the waiting hall. In addition, reservation rooms, a parcel office and a canteen have also been provided. A dormitory is provided on the first floor. With the growing traffic originating from Bombay and the subsequent increase in the number of services, an additional depot was started in November 1972 at the Modern Mills Compound at Parel. It has also a spacious waiting hall, a room, and a reservation room. Besides the above two depots, Chembur depot was started in December 1984 with a fleet of 17 vehicles. Besides these stations eight pick-up stands are provided at Byculla, Lalbaug, Dadar, King's Circle (Sion), Kurla, Maitri Park—Chembur, Ghatkopar and Borivli.

The light and heavy repairs are carried out at the Divisional Workshop which is situated at Tardeo. This workshop was started in January 1950. In addition, the Kurla workshop was started in 1962. After the operation of every 24,000 km. the vehicles are routed to the Divisional Workshop for preventive maintenance. Regular daily and weekly servicing and the 8,000 kilometres docking for maintenance is carried out at depot workshop, situated at Bombay Central.

Operations : Operations were started in the erstwhile Bombay Division from 1st April 1950 on 39 routes with the route distance of 1859 km. As on 31st December 1984, Bombay Central depot had 81 vehicles, while

the Parel depot had 69 vehicles. The number of routes operated by these two depots as on 31st December 1984 was 35 and 29, respectively. Four luxury buses are included in the vehicles attached to Bombay Central depot. There were in all 39 routes emanating from the Bombay Central and Parel depots to various places within and outside the State, with a total of 13,598 route kilometres and carrying on an average 6,500 passengers per day in 1976-77. As on 31st October 1976 the Bombay Central depot had on an average 195 departures per day. Out of these 32 departures were on the routes attached to the Bombay depot, 152 departures on routes operated by other divisions and 11 departures on routes operated by other States.

There were ten inter-State routes starting from Bombay Central depot as on 31st October 1976 as shown below :—

(1) Bombay-Panaji,
(2) Bombay-Madgaon,
(3) Bombay-Belgaum,
(4) Bombay-Indore,
(5) Bombay-Mangalore,
(6) Bombay-Bangalore,
(7) Bombay-Karwar,
(8) Bombay-Ujjain,
(9) Bombay-Surat, and
(10) Bombay-Baroda.

The Modern Mills depot, Parel, had 50 departures per day during October 1976. Out of these, 14 were on routes operated by the depot and 36 were on routes operated by other divisions. There were on an average, about 4,400 passengers travelling per day from Modern Mills depot during October 1976.

Details of the routes emanating from Parel depot and the Bombay depot are given below (as on 31st October 1976)*:—

Serial No.	Route	Route distance (in km)	No. of single trips operated	Average No. of persons travelled per day
(1)	(2)	(3)	(4)	(5)
	Modern Mills (Parel) Depot—			
1	Parel-Jambhori	368.2	1	58
2	Parel-Sonsal	360.6	1	71
3	Parel-Ambet	163.5	1	118
4	Parel-Jambhulni	371.1	1	154
5	Parel-Pusesawali	337.6	1	84
6	Parel-Saikole	250.0	1	151
7	Parel-Shiroda	555.8	1	64
8	Parel-Palghar	145.0	1	134
9	Parel-Tarkarli	515.4	1	68
10	Parel-Vengurla	512.4	1	63
11	Parel-Pali	145.3	1	88
12	Parel-Dodamarg	545.4	1	58

* The details of the routes emanating from Bombay and Parel depots as in December 1984 is given at the end of this chapter.

Serial No.	Route	Route distance (in km)	No. of single trips operated per day	Average No. of persons travelled per day
(1)	(2)	(3)	(4)	(5)
	Bombay Depot—			
1	Bombay-Indore	607.7	1	146 Alternate day.
2	Bombay-Indore (Luxury) ..	607.5	1	37
3	Bombay-Kelshi	331.3	1	109
4	Bombay-Khopi	257.7	1	109
5	Bombay-Hedavi	349.5	1	84
6	Bombay-Makhajan	307.9	1	140
7	Bombay-Guhagar	323.3	1	103
8	Bombay-Belgaum	523.2	1	103
9	Bombay-Ambet	179.3	1	76
10	Bombay-Pali	138.9	1	85
11	Bombay-Sadashivgad ..	701.6	1	46
12	Bombay-Panaji (Luxury) ..	590.7	2	52
13	Bombay-Panaji (Ordinary) ..	590.7	1	55
14	Bombay-Kalawali	524.7	1	80
15	Bombay-Kase	323.2	1	49
16	Bombay-Jaitapur	440.3	1	72
17	Bombay-Sagave	485.6	1	61
18	Bombay-Palghar	147.9	2	250
19	Bombay-Talasari	151.7	1	110
20	Bombay-Ganeshpuri	82.0	2	220
21	Bombay-Shirdi	269.5	1	60
22	Bombay-Borivli	30.0	1	110
23	Bombay-Bhiwandi	52.0	7	409
24	Bombay-Madgaon ..	639.7	1	65
25	Bombay-Nandvi	162.3	1	141
26	Bombay-Panchgani (Luxury) ..	253.3	1	34
27	Bombay-Mahableshwar (Luxury) ..	256.7	1	30

Goods Transport : Goods transport services were started in Bombay with the aid of trucks received under the Canadian Aid Programme in 1953, as regular scheduled services to all the parts of the State. These were gradually discontinued and the trucks were utilized mainly for the work of the Greater Bombay Municipal Corporation, the Bombay Port Trust and the Police Department during emergencies.

With the ageing of the trucks and the consequent difficulty in replacement of parts the goods transport services were discontinued from March 1968.

Now the goods transport is done by the routine passenger buses. During 1970-71 on an average 500 parcels were booked. In addition to this on an average 300 newspaper parcels are also sent to various places. There are three booking and delivery offices situated in the city located at Bombay Central, Chinchbunder and Mandvi. The number of parcels

booked and delivered and the revenue earned during 1974-75 and 1975-76 are given in the following statement :—

Booking and delivery offices	Year			
	1974-75		1975-76	
	No. of Parcels	Revenue earned in Rs.	No. of Parcels	Revenue earned in Rs.
(1)	(2)	(3)	(4)	(5)
Parcels booked—				
1. Chinchbunder	21,147	1,20,844	17,857	1,50,819
2. Mandvi	37,239	1,78,024	28,508	2,46,563
3. Bombay Central	45,108	2,52,468	49,944	3,50,758
Total ..	1,03,494	5,51,336	96,309	7,48,140
Parcels delivered—				
1. Chinchbunder	143	3,133	1,261	10,240
2. Mandvi	498	7,927	315	7,358
3. Bombay Central	33,721	81,664	33,300	1,19,451
Total ..	34,362	92,724	34,876	1,37,049

BOMBAY ELECTRIC SUPPLY AND TRANSPORT UNDERTAKING (B.E.S.&T.)

The growth of population, trade, industrialisation, etc. in Bombay necessitated the well established and organized modern means of transport. The old means of transport such as *shigrams, rekales, palkhis, chhakadas, tongas* (victorias) etc. which were incompatible with requirements for speedy transport in the bustling areas of Bombay were outdated.

Trams : The Bombay tramway was originally projected in 1864. However, the scheme did not materialise for some time. In October 1870, the proposal for the horse-tramway was revived by M/s. Stearns, Hobart and Co. The scheme was accepted and on 6th March 1873 sanction was given to a contract with M/s. Stearns and Kittredge, with the agreement of twenty-one years from the 12th March 1873. The company established Bombay Tramway Company Limited in 1873 for operating trams in the city. Government also passed an Act, the Tramways Act I of 1874.* The agreement was renewed by the Municipality in 1894. The administrative offices of the company and the principal stables were at Colaba, and another large stable was maintained at Byculla opposite the Victoria Gardens. The same company started functioning with 200 horses and 20 omnibuses. This concern was taken over by the Bombay Electric Supply and Tramways Co. Ltd. in 1905. The B.E.S. & T. Co. Ltd. had purchased the assets of the Bombay Tramways and Company Ltd. valued at Rs. 98.5 lakhs.

*S. N. Pendse, *BEST Upakramachi Katha.*

The first tramways from Colaba to Pydhuni *via* Crawford market, and V. T. to Pydhuni *via* Kalabadevi were opened for traffic on 9th May 1874. During the subsequent period tramway routes were laid from Colaba to King's Circle. In the beginning the company had to attract the people to travel by tram cars. It reduced the fare which was three annas in 1874 to an anna in 1899. Electrically operated tram-cars first started running on 7th May 1907 on the Colaba to Crawford market route. The Bombay Electric Supply and Tramways Company Ltd. also undertook the work of supplying electricity in Bombay. During 1920 the company introduced two-storeyed tram-cars in Bombay and tram became a very popular means of transport in Bombay. Besides, it was the cheapest means of transport. However, its speed was limited, not exceeding 8 km. (5 miles) an hour. After the World War II the industrialization increased very rapidly and people expected speedy means of transport such as cars, buses, railway trains, etc. and slow moving tram-cars became outdated in the epoch of speedy means of transport. Hence, the company had to abolish tram services in 1964. The last tram ran from V.T. to Dadar on 31st March 1964. Many persons grieved at that time. Really, it was a vehicle of poor people. From the beginning the Bombay Tramways Company Ltd. was famous for its punctual transport, minimum charges of fares and efficiency.

Buses : After World War I, the service of trams seemed very scanty to fulfil the travelling needs of the increasing passenger traffic. Therefore, the Bombay Electric Supply and Tramways Company Ltd. introduced bus transport during 1926. The first bus ran on 15th July 1926. Like tram-cars, people also accepted this new vehicle whole heartedly. In the beginning bus fares differed from two *annas* to six *annas* according to the distance. Half fares for children below 12 years were introduced in 1928. During 1926 there were only 24 buses owned by the company and about six lakhs of passengers took advantage of travelling through these buses during the same year ; while during 1927 the number of buses and passengers rose to 49 and 38 lakhs, respectively. The double decker buses were introduced in 1937. The year 1939 is an important year in the life history of the B.E.S. & T. bus service. Due to rationing of petrol and car-tyres during the War period, many car owners used to travel by these buses and hence passenger traffic increased tremendously during the period.

In accordance with the deed of concession granted to the B.E.S.&T. Co. Ltd., the Municipal Corporation exercised on 7th August 1947, its option to acquire the assets of the company in respect of tramways and electric supply section and by mutual agreement the operation of the bus services within the municipal limits of Bombay.

The trolley bus service was introduced in June 1962 and was suspended in March 1971. Before Independence the jurisdiction of the B.E.S.&T.

Co. Ltd. was limited to Bombay island only. After Independence it was extended to Greater Bombay areas. The B.E.S. & T. Undertaking had taken all strings in its hands during August 1947, after which many difficulties had given challenges to it, such as, growth of industrialization, torrents of refugees in Bombay, increase in the number of offices in south Bombay and the employees in them, etc. This undertaking accepted many of these challenges and faced them successfully.

The Bandra Bus company was running its fleet in a few of the Bombay suburban areas adjoining Bandra. The Regional Transport Authority ordered this concern to ply its fleets on all the main roads of Bombay's suburbs. As this concern refused, the Regional Transport Authority requested the B.E.S. & T. Undertaking to ply its fleet in the suburban areas of Bombay and the latter accepted this new challenge on the 1st October 1949.

During August 1947 this undertaking owned only 157 buses. This number rose to 582 in 1957. During 1974-75 the undertaking had owned a fleet of 1,530 buses. During 1947 the average daily receipt was Rs. 11,000 which rose to Rs. 41,000 in 1957. During the year 1974-75 the average daily receipts of the undertaking amounted to Rs. 6,96,862. The average number of persons travelled per day was about one lakh in 1957 which rose to 30 lakhs in 1974-75.

The number of buses rose to 2,325 in 1984. During 1983-84, the average daily receipts of the undertaking amounted to Rs. 20,07,731. The average number of persons travelled per day was 36,49,139 in the year.

During 1967 the Undertaking introduced "All Standy Bus" service with a good intention of accommodating more travellers. But the passengers of Bombay objected this new vehicle and this bus service was suspended in 1970. The articulated bus service was introduced in 1967. This double decker bus with separate engine became very popular among the passengers. About 100 passengers or more can travel at a time by this new bus. The trolley bus service was introduced in 1962 with the intention to run these buses on the tramways. This new experiment also failed and the Undertaking had to abolish the trolley bus service during 1971.

Few private companies were also running their vehicles in the eastern and the northern suburbs of the city. The Regional Transport Authority suspended their business according to the Court decision of 1959 and since February 1959 the B.E.S.&T. Undertaking is the sole authority which plys buses in Greater Bombay.

There are 16 bus depots of B.E.S. & T. Undertaking in Bombay. They are located at (1) Colaba, (2) Bombay Central, (3) Santacruz, (4) Kurla, (5) Tardeo, (6) Wadala, (7) Worli, (8) Poisar, (9) Marol, (10) Deonar, (11) Vikhroli, (12) Goregaon, (13) Backbay, (14) Dharavi, (15) Bandra and (16) Ghatkopar.

The railway employees were on strike from 8th May 1974 to 27th May 1974. This affected the suburban services of the Western and Central railways, leaving the B.E.S. & T. Undertaking to provide the mass transport. The role played by the B.E.S. & T. Undertaking during the railway strike came in for praise from all quarters.

The following statement shows the operational statistics of the B.E.S. & T. buses during 1973-74 and 1983-84 :—

Particulars	Year	
	1973–74*	1983–84†
(1) Fleet owned	1478	2,325
(2) Effective fleet	1419	2,279
(3) Average effective fleet	1384	2,289
(4) Average No. of buses in service	1257	2,070
(5) Fleet utilization (average for year) (Col. 4 : Col. 3). ..	90.82%	90.43%
(6) (*a*) Effective km. (aggregate) ..	9,91,95,048	15,77,32,060
(*b*) Daily average (km.) ..	2,74,019	4,30,962
(*c*) Vehicle utilization (km.) ..	218.0	208.2
(7) (*a*) Passengers carried	1,06,65,29,827	1,33,67,82,907
(*b*) Daily average of passengers	29,46,215	36,52,412
(8) (*a*) Earnings (in Rs.)	18,80,45,197	73,48,29,661
(*b*) Daily average (in Rs.)	5,19,462	20,07,731
(*c*) Per vehicle in service (in Rs.)	413.26	969.92
(*d*) Per seat km. (in Paise)	2.60	6.13
(*e*) Per km. (in Paise)	189.57	465.87
(*f*) Per passenger (in Paise)	17.63	54.97
(*g*) Cost per km. (in Paise)	224.98	609.27

*Average of 362 days (No operations on three days due to *bandhs*).
† No. of routes operated was 197.

The following statement shows the tickets sold in 1979-80:—

Denomination	Sale of Fare Tickets			
	During the whole year	Average per month	Average per day	Percentage
10 ..	6,98,87,360	58,23,947	1,90,949	4.60
20 ..	63,99,90 290	5,33,32,524	17,48,607	42.11
25 ..	40,15,98,179	3,34,66,515	10,97,263	26.43
30 ..	4,26,79,768	35,56,647	1,16,611	2.81
40 ..	18,28,66,755	1,52,47,480	4,99,917	12.04
50 ..	7,09,46,408	59,12,201	1,93,843	4.67
60 ..	5,64,05,455	47,00,455	1,54,113	3.71
80 ..	3,24,07,775	27,00,648	88,546	2.13
100 ..	1,75,98,174	14,66,514	48,083	1.16
120 ..	49,91,492	4,15,958	13,638	0.33
140 ..	2,07,009	17,251	5,66	0.01
Total ..	1,51,96,81,665	12,66,40,140	41,52,136	100.00

Engineering : The B.E.S.&T. Undertaking has its own engineering branch of transportation, which is responsible for maintenance, repairs and overhauling of the passenger bus fleet and internal transport vehicles.

The first engineering workshop was established in 1886 at Colaba to repair the trams. This workshop was shifted to King's Way at Dadar in June 1915.

During 1926 a bus-workshop was opened at Colaba. As this workshop proved to be inadequate to repair the buses, a new workshop was attached to the tram-workshop at Dadar. During 1964 when the tram service was abolished, the tram-workshops were converted into bus-workshops.

Bus routes : There were as many as 141 BEST bus routes[1] in Bombay city, suburbs and extended suburbs, in 1976. Details regarding the bus routes are given in Table No. 22.

TABLE No. 22

BEST ROUTES AS ON 30TH OCTOBER 1976

Serial No.	Bus Route No.	Route		No. of round trips per day including extras operating on routes		Average No. of passengers travelled per day (including extras operating on routes)
		From	To	Scheduled	Operated	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1	1	Colaba Bus Station ..	Mahim Bus Station ..	218	216	85,200
2	1 Ltd.	Colaba Bus Station ..	Mahim Bus Station ..	91	91	23,400
3	3	Navy Nagar	Jijamata Udyan ..	92	92	36,000
4	4 Ltd.	Hutatma Chowk ..	Andheri Station (West).	362	360	77,800
5	5	Mantralaya	M. L. Chowk ..	207	207	55,600
6	6 Ltd.	Electric House ..	Refineries ..	183	183	35,800
7	7 Ltd.	Electric House ..	Vikhroli Depot ..	172	172	39,800
8	8 Ltd.	Hutatma Chowk ..	Dr. Ambedkar Udyan ..	186	184	32,800
9	9	Museum	Antop Hill ..	139	139	34,900
10	10 Ltd.	Hutatma Chowk ..	Ghatkopar Station ..	89	89	24,800
11	41	Ferry Wharf	Pt. Paluskar Chowk ..	81	79	10,400
12	42	Ferry Wharf	Bombay Central Depot.	43	42	6,300
13	43	Colaba Bus Station ..	Maheshwari Udyan ..	104	99	27,000
14	44	Museum	Worli Village ..	115	107	34,600
15	45	Mantralaya	Mahim Bus Station ..	116	109	29,800
16	47	Museum	Babulnath ..	123	120	22,800
17	48	Ferry Wharf	August Kranti Maidan.	73	73	11,000
18	49	Fort Market	Wadala Station ..	2	2	100
19	50	Ferry Wharf	Worli Village ..	41	41	8,900
20	51	Ferry Wharf	Mahim Bus Station ..	1	1	100
21	61	Fort Market	Mahim Bus Station ..	82	82	25,000
22	62	Hutatma Chowk ..	Mahim Bus Station ..	116	115	31,300
23	63	J. M. Mehta Road ..	M. L. Chowk ..	120	121	48,500

[1] The No. increased to 197 in 1983-84.

TABLE No. 22—*contd.*

Serial No.	Bus Route No.	Route		No. of round trips per day including extras operating on routes		Average No. of passengers travelled per day (including extras operating on routes)
		From	To	Scheduled	Operated	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
24	64	Babulnath ..	.. Maheshwari Udyan ..	125	125	31,700
25	65	Museum ..	.. Maheshwari Udyan ..	157	157	45,200
26	66	Ballard Pier ..	.. M. L. Chowk ..	258	258	73,000
27	68	Ballard Pier ..	.. Worli Chawls ..	119	118	42,500
28	69	Museum ..	.. Sewree ..	133	133	34,000
29	70	Electric House	.. Mahim Bus Station ..	95	95	30,000
30	71	Ballard Pier ..	.. Shivaji Park ..	63	62	16,900
31	72/73	Pt. Paluskar Chowk	.. Pt. Paluskar Chowk (*via* Maheshwari Udyan).	289	273	49,800
32	74	Ballard Pier ..	.. Mahim Bus Station ..	66	66	19,600
33	81	Mantralaya ..	.. Santacruz Police Station.	128	128	39,500
34	82	Mantralaya ..	.. Worli Seaface (N) ..	57	57	9,500
35	83	Ballard Pier ..	.. Santacruz Depot ..	221	221	48,000
36	84 Ltd.	Hutatma Chowk	.. Andheri Station (West).	270	261	55,000
37	85	Hutatma Chowk	.. Chunabhatti ..	118	118	37,800
38	86	Hutatma Chowk	.. Mahim Bus Station ..	204	204	36,100
39	87 Ltd.	Mantralaya ..	.. Govt. Colony (Bandra).	108	108	15,200
40	89	Mantralaya ..	.. Worli Seaface (N) ..	51	50	8,200
41	90 Ltd.	Hutatma Chowk	.. Deonar Depot ..	101	101	25,900
42	101	Museum ..	.. Walkeshwar ..	141	139	37,400
43	102	Kamala Nehru Park	.. Kamala Nehru Park (*via* Carnac Bunder).	78	76	19,500
44	103	R. C. Church	.. Walkeshwar ..	102	106	29,600
45	104	J. M. Mehta Road	.. J. M. Mehta Road (*via* Vijay V. Chowk).	126	122	24,200
46	106	Hutatma Chowk	.. Kamala Nehru Park ..	93	92	11,800
47	107	Colaba Bus Station	.. Walkeshwar ..	63	63	15,600
48	122	Fort Market/Museum	.. J. M. Mehta Road ..	124	122	22,900
49	123	R. C. Church	.. Tardeo	130	129	32,700
50	124	Colaba Bus Station	.. Worli Chawls ..	131	130	36,100
51	126	Mantralaya ..	.. Jijamata Udyan ..	125	122	30,700
52	127	Hutatma Chowk	.. Prarthana Samaj ..	113	113	5,100
53	128	Hard Square	.. M. P. Market ..	16	16	1,100
54	129	Ballard Pier ..	.. Tardeo Depot ..	62	59	4,100
55	130	Museum ..	.. Tardeo	237	218	46,800
56	131	Fort Market ..	.. Fort Market (*via* Carnac Bunder).	59	59	6,700
57	132/133	Colaba Bus Station	.. Colaba Bus Station (*via* Tardeo).	299	298	55,700
58	135	Mazgaon Docks	.. August Kranti Maidan.	197	190	38,100
59	137	Navy Nagar	.. Navy Nagar (*via* M. P. Market).	101	100	13,700
60	152 Ltd.	Nair Hospital	.. Haji Ali	6	6	400

TABLE No. 22—*contd.*

Serial No.	Bus Route No.	Route		No. of round trips per day including extras operating on routes		Average No. of passengers travelled per day (including extras operating on routes)
		From	To	Scheduled	Operated	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
61	153/154	Byculla Station (West) ..	Byculla Station (West) (*via* Lotus Cinema)	132	132	11,800
62	161	Sewree	Wadala (E).. ..	56	55	9,700
63	162	Sewree	Worli Village ..	159	156	33,000
64	165	M. G. Chowk ..	M. L. Chowk ..	305	288	73,700
65	166	Antop Hill	Shahu Nagar ..	111	109	14,600
66	168	Tata Oil Mills ..	Dnyaneshwar Nagar ..	184	183	48,400
67	169	Worli Village.. ..	Maheshwari Udyan ..	78	77	10.600
68	171	Worli Dairy	Antop Hill ..	77	75	21,300
69	181*	K. G. Chowk.. ..	Kamala Nehru Park ..	25	25	2,100
70	182*	Dadar	Juhu Beach ..	35	28	3,400
71	183*	M. L. Chowk.. ..	Vihar Lake ..	61	61	5,000
72	184*	Andheri Station (East.) ..	Vihar Lake ..	44	43	3,800
73	187*	Borivli Station (East) ..	National Park ..	13	12	700
74	188*	Borivli Station (East) ..	Kanheri Caves ..	47	45	3,100
75	201	Sewree	Goregaon Bus Station ..	346	341	53,300
76	202 Ltd.	Mahim	Borivli Bus Station ..	82	82	21,800
77	203	Andheri Station (West) ..	Borivli Bus Station ..	151	147	21,200
78	208	Sainath Road.. ..	Borivli Station (East) ..	62	62	18,300
79	211	Band Stand	Dr. Ambedkar Road ..	124	123	22,600
80	212	Govt. Colony (Bandra) ..	Bandra Station (West).	227	227	18,500
81	214	Band Stand	Dr. Ambedkar Road ..	51	51	4,400
82	215	Bandra Station ..	St. Merry's Steps ..	79	79	6,800
83	221	Hill Road	Khar Station (West) ..	217	217	45,400
84	231	Santacruz Station (West).	Juhu Bus Station ..	214	214	28,900
85	251	Andheri Station (West) ..	Versova	470	470	49,400
86	252	Andheri Station (West) ..	Amboli Village ..	76	76	4,000
87	253	Juhu Bus Station ..	Goregaon Bus Station ..	130	130	31,800
88	254	Andheri Station (West) ..	Veera Desai Road ..	133	133	14,800
89	261	Goregaon Bus Station ..	Shastri Nagar ..	277	274	23,100
90	262	Goregaon Bus Station ..	Motilal Nagar II ..	169	169	15,900
91	271	Malad Station ..	Madh Temple ..	60	60	7,600
92	272	Malad Station ..	Marve	140	135	16,000
93	273	Sainath Road ..	Gaikwad Nagar ..	209	209	20,300
94	274†	Malad (West) ..	Pushpa Park ..	90	90	4,800
95	281	Sainath Road ..	Kandivli Station (West).	263	255	24,100
96	282	Kandivli Station (East) ..	Damu Nagar ..	111	111	10,700
97	283	Kandivli Station (West) ..	Kandivli Station (West) (*via* Mayur Talkies)	81	81	4,300
98	291	Borivli Station (East) ..	Dahisar Check Naka ..	119	119	15,800
99	292	Vazira Naka	Vallabh Nagar ..	142	142	18,600
100	293	Shanti Ashram ..	Vallabh Nagar ..	85	85	9,100
101	294	Poisar Depot ..	Gorai Creek ..	41	41	3,800
102	295	Shimpoli Village ..	Vallabh Nagar ..	54	54	3,700
103	297	Borivli Station (East) ..	Borivli Station (East) .. (*via* Dattapada M. Sch.)	47	47	900
104	302	M. L. Chowk.. ..	Mulund Bus Station (Mulund Railway Stn.)	192	191	67,200
105	305	M. L. Chowk.. ..	Mulund Bus Station ..	62	62	22,000
106	311	Kurla Station(West) ..	Santacruz Station (East).	239	237	39,000

* Sunday and Holiday Services—Data for 31-10-1976.

† Route 274 suspended from 1-10-76—Data for September 1976.

TABLE No. 22—*concld.*

Serial No.	Bus Route No.	Route		No. of round trips per day including extras operating on routes		Average No. of passengers travelled per day (including extras operating on routes)
		From	To	Scheduled	Operated	
(1)	(2)	(3)	(4)	(5)	(6)	(7)
107	312	M. L. Chowk.. ..	SEEPZ	114	113	29,700
108	313	Kurla Station (West) ..	Santacruz Stn. (East) ..	165	165	29,600
109	314/315	Govt. Colony (Bandra)	Govt. Colony (Bandra) (*via* M. L. Chowk)	275	275	50,800
110	322	Vidya Vihar Station ..	Hanuman Road ..	74	74	18,300
111	326/327	Andheri Station (East) ..	Andheri Station (East) (*via* Chakala Cig. Fac.)	48	48	3,200
112	331	Sahar Village ..	Marol Village ..	173	171	37,200
113	332	Kurla Station (West) ..	Andheri Station (East)	390	377	76,600
114	333	New Quarters ..	Holy Spirit Hospital ..	111	111	18,300
115	336/337	Andheri Station (East) ..	Andheri Station (East) (*via* Ghatkopar Station)	355	355	72,400
116	339	Pump House ..	Juhu Bus Station ..	104	104	23,400
117	341	M. L. Chowk ..	Goregaon Station ..	156	156	32,400
118	342	Goregaon Station ..	Goregaon Station (*via* Central Dairy).	20	20	1,300
119	351	Dadar	B.A.R.C.	196	194	30,600
120	352	M. L. Chowk.. ..	Trombay	267	263	34,100
121	353	Wadala Depot ..	Tagore Nagar ..	68	68	10,300
122	361	Mahul Village ..	Kurla Station (East) ..	118	118	19,200
123	362	Dr. Ambedkar Udyan ..	Kurla Station (East) ..	120	118	17,200
124	371	Anushakti Nagar ..	Bandra Station (West)	147	147	28,800
125	376	Chembur Station ..	Shivaji Nagar ..	63	63	7,200
126	377	M. L. Chowk ..	Deonar Depot ..	48	48	5,300
127	381	B.A.R.C.	Ghatkopar Station (East)	193	190	36,500
128	384	Ghatkopar (West) ..	Bandra Station ..	80	80	29,000
129	384 Ltd.	Ghatkopar (West) ..	Bandra Station ..	90	89	800
130	385	Dadar	Ghatkopar Station (East)	115	119	21,200
131	386	Ghatkopar Depot ..	Ghatkopar Station (East)	43	43	2,200
132	387	Ghatkopar Station (West).	Parksite Colony ..	62	62	6,800
133	388 Ltd.	Ghatkopar Station (West).	Borivli Bus Station ..	98	98	26,900
134	391	Mulund Station ..	Shastri Nagar ..	197	196	18,600
135	392	Vikhroli Depot ..	Vikhroli Depot .. (*via* I.I.T.).	30	30	1,500
136	394	Vikhroli Station (West) ..	Kannamwar Nagar-II ..	217	217	20,300
137	395	Mulund Station ..	Nahur Village ..	39	39	3,300
138	396 Ltd.	Mulund Station ..	Andheri Station (East)	109	109	20,600
139	School	.... ..	.... ..	51	51	1,000
140	Res.	.... ..	.... ..	....	....	1,000
141	O. Ext.	.... ..	.... ..	....	....	7,200
				17,927	17,727	33,84,100

Rail-road Competition and Co-ordination : The number of vehicles began to increase after 1920 in accordance with the increasing quantum of business after the cessation of the First World War. The Road Enquiry Committee suggested that the motor transport should be encouraged in the interest of the road development in India. The number of trucks began to increase after 1930 which provided increased facilities to the businessmen

and traders. This created the problem of rail-road competition due to which Indian Railways began to lose many crores of rupees annually.

The Government of India appointed the Mitchell-Kirkness Committee in 1932 to study the problems of rail-road competition. The committee recommended certain measures in 1933 to eliminate this competition which was suicidal to the interest of both. It suggested the creation of Central Advisory Board of Communications. Consequently a Transport Advisory Council was formed in 1935. The Wedgewood Committee (1936-37) and the Road Transport Reorganization Committee (1959) also studied the problems of rail-road competition.

Though there is some rail-road competition in some parts of India, both the modes of transport are complementary to each other in Bombay. They help each other for carrying transport load. Even during the peak hours from 8-00 a.m. to 12-00 a.m. and from 16-00 p.m. to 21-00 p.m. the existing means of both modes are also insufficient for carrying the passenger load.

ROAD VEHICLES

The Motor Vehicles Department deals with the administration of the Indian Motor Vehicles Act, 1939 as amended by the Act C of 1956, the Bombay Motor Vehicles Rules, 1959, the Bombay Motor Vehicles Taxation Rules, 1959, and the Bombay Motor Vehicles Taxation of Passengers Act, 1958 and rules made thereunder. The Regional Transport Authorities control the different categories of transport vehicles in the regions and deal with the issue of permits according to the policy laid down by the State Transport Authority and the State Government from time to time.

The following statement shows the statistics of road vehicles in Greater Bombay licensed under the Motor Vehicles Act, during 1971–1978:—

Type of vehicles	Number of vehicles		
	1971	1975	1978
1. Motor cycles, scooters, etc. ..	32,555	51,955	62,673
2. Motor cars	93,010	1,23,561	1,37,366
3. Taxi cars	16,017	20,055	23,701
4. Auto-rickshaws	6	56	667
5. Stage carriages	2,558	1,762	2,282
6. Motor lorries	9,097	12,796	15,251
7. Public carriers	11,617	10,430	19,675
8. Ambulances	261	330	378
9. School buses	364	378	410
10. Private service vehicles ..	527	605	828
11. Trailers	355	517	537
12. Tractors	548	665	741
13. Other vehicles	12,777	11,007	2,129
Total ..	1,79,951	2,34,197	2,66,638

ROAD ACCIDENTS

As compared to the other cities in India, the ratio of road accidents in Greater Bombay is higher.

The following statement shows the statistics of road accidents in Greater Bombay from 1952 to 1977:—

Year	Accidents				
	Fatal	Serious	Slight	Minor	Total
1952 ..	252	505	3,929	9,571	14,257
1957 ..	260	579	4,915	14,420	20,174
1962 ..	336	424	5,877	23,564	30,201
1966 ..	517	360	6,548	17,067	24,492
1970 ..	621	633	7,091	17,631	25,976
1974 ..	557	294	6,519	15,160	22,530
1975 ..	507	268	6,496	14,631	21,902
1976 ..	544	....	....	23,433*	24,177
1977 ..	636	....	....	24,624*	25,260

*Including serious and slight injuries.

Since 1952 the highest number of accidents were recorded in 1962 which stood at 30,201, which were reduced to 25,260 in 1977. The factors which enabled in reducing the number of accidents are : widening of roads as per the Wilbur Smith Plan, installation of new automatic signalling system; an intensive special training to pedestrians, school children and bus-drivers; etc.

During 1975 the largest number of accidents *i.e.* 1,543 were recorded at Gamdevi Police Station while the smallest number *i.e.* 10 were recorded at Wadala Police Station. During the same year as many as 1,066 accidents occurred on Dr. Babasaheb Ambedkar road, 1,056 on Swami Vivekanand road, 539 on Sion road and 306 on Netaji Subhash road.

Out of the total accidents of 21,902 that occurred during 1975 the number of cars, taxis, BEST buses, lorries and motor cycles involved in accidents were 8,564; 3,606; 3,490; 2,525 and 1,392, respectively. The total number of persons injured in accidents were 8,230 in 1975, of which 2,140 (26 per cent) persons were from 17-25 age-group; 1,964 (23.9 per cent) were from 16 and below age-group; 1,908 (23.2 per cent) were from 26-40 age-group; 975 (11.8 per cent) were from the 41-60 age-group; 449 (5.4 per cent) were from 60 and above age-group and 786 (9.5 per cent) were from the group—age not traced.

The following statement shows the statistics of persons involved in accidents during 1974 and 1975 :—

Type of persons involved	Number	
	1974	1975
(1) Drivers	882	784
(2) Occupants	891	770
(3) Pedestrians	5,883	5,739
(4) Cyclists	358	477
(5) Pillion-riders	177	208
(6) Others	195	252
	8,366	8,230

TOURIST FACILITIES

As a commercial and industrial city, the capital of Maharashtra State, a city of international importance and one of the biggest cities in India as also in the world, Bombay city has acquired considerable importance as a tourist place. Tourists from all over the country and the world visit Bombay to see masterpieces of architecture and sculpture in and around Bombay. Many persons visit for their official as well as business work. Consequently a number of hotels of international standard, five star hotels and modern lodging houses have sprung up in the city. A few famous among them are as under[1] :—

Hotel Taj Mahal, Colaba; Taj International, Colaba; Oberoi Sheraton, Nariman Point; Hotel Hill Top, Worli; Centaur Hotel, Santacruz Air Port; Hotel Natraj, Marine Drive; Sun-N-Sand, Juhu; Juhu Hotel, Juhu; Hotel President, Backbay; Shalimar Hotel, Cumballa Hill; Air Lines Hotel Ltd., Churchgate; Ambassador Hotel, Churchgate; Apollo Hotel, Apollo Bunder; Fredricks Hotel, Apollo Bunder; Grand Hotel, Ballard Estate; Green's Hotel and Restaurant, Apollo Bunder; Mirabelle Hotel, Marine Lines; Palmgrove Hotel, Juhu; Railway Hotel, Charni Road; Ravi Hotel, Dadabhai Naoroji Road; Regent Hotel, Ballard Estate; Ritz Hotel, Churchgate; Sea Green Hotel, Netaji Subhash Road; Strand Hotel, Apollo Bunder; Waldorf Hotel, Colaba and West End Hotel, Marine Lines. Besides, there are many famous restaurants for lunch and dinner to the travellers. A few famous among the Indian and western type restaurants are given below:—

Airport Plaza; Airways; Ceasar's Palace; Sea Rock; Palm Grove; King's International; Bery's, Veer Nariman Road; Chetna, Rampart Row; Gulmohor; Green's Hotel; Purohit, Veer Nariman Road; York's, Lamington Road; Eros, Churchgate; Gourdon, Churchgate;

[1] This list is not complete.

Falettis, Colaba; Kwality, Colaba; Kwality, Cumballa Hill; Parsian Dairy, Marine Lines; Picnic Cottage, Versova; Rendez; Taj Mahal Hotel; Sea View Restaurant, Juhu; Grill Room-Ambassodor Hotel and Volga, Veer Nariman Road.

The Maharashtra Government has also provided well equipped guest houses for the benefit of Officers on Government duty and V.I.Ps. These guest houses are: Sahyadri Guest House, M.L.A.'s Hostel, Majestic Hotel, Amber Guest House, Avanti Guest House and Suruchi Circuit House.

The Tourism Development Corporation of the Government of India as also the Department of Tourism of the Maharashtra Government provide all the necessary amenities including accommodation, transportation, sight-seeing, guide service, tourist literature and information to the tourists.

Dharmashalas : There are four big *dharmashalas* in Bombay city, of which three are maintained by the Gadge Maharaj Sansthan which are located at : (1) 10A, Sir Jamshetji Jeejeebhoy road, Madanpura, Byculla; (2) 4th Peer Khan Street, Byculla, and (3) 180-B and C Motishah road, Nagpada. The first is attached with Hanuman Mandir, the second is Dharmashala-*cum*-Musafirkhana while the third is attached with shops. The fourth *dharmashala* is located at 579-581, 2-Maulana Azad road, Nagpada which is used for the destitutes. Besides these four *dharmashalas*, three Khoja *musafirkhanas*, one Sunni Bohra *musafirkhana* and Kutchi Lohana *dharmashala* are also located in B Ward.

Private Travel and Tourist Services : During 1974 there were as many as 116 private travel and tourist services operating their fleets of vehicles in Bombay. The list of some of them is given below:—

List of Tourist and Luxury Cab Operators

Serial No.	Name and Address of the Permit Holder	Tourist	Luxury	A/C Luxury Bus
1	Blue Star Garage, Chinoy Mansion, Warden Road, Bombay-26.	11	2	..
2	Modern Garage, Bellasis Road, Bombay-8	26	35	..
3	Sure Fleet Motor Services, Chinoy Mansion, Bomanji Petit Road, Bombay-26.	40	19	..
4	Pravin Auto Hirers, 15, Saraswat Road, Santacruz, Bombay-54.	..	4	..
5	Travel Corporation of India Limited, Arthur Bunder Road, Bombay-5.	14	5	..
6	Auto Hirers, 7, Kemp's corner, Petit Road, Nana Chowk, Bombay-7.	16	4	..
7	Trade Ways Private Limited, 30, Rampart Row, Bombay-1.	..	5	..

Serial No.	Name and Address of the Permit Holder	Tourist	Luxury	A/C Luxury Bus
8	Sanghi Motors Bombay Pvt. Ltd., Hughes Road, Bombay-7.	29	11	1
9	Hind Musafir Agency Pvt. Limited, Khorshed Building, P. M. Road, Bombay-1.	2	..	..
10	Star Motor Company, 25, Fort, Near Mahim Police Station, Bombay-16.	7	..	..
11	K. P. Mohamed, M/s. Auto Fleet, 106, Sassoon Dock, Bombay-5.	7	..	..
12	Supper Fleet Auto Hire Service, 63, Amin Building, Ibrahim Road, Bombay.	5	..	..
13	Mitan Automobiles, 91/21, Dalal Street, Fort, Bombay-1.	4	5	..
14	Comfortkers, Russi House, Nepean Sea Road, Bombay-6.	9	1	..
15	Jasvantsingh and Sons, Hargun House, Nepean Sea Road, Bombay-6.	3	..	..
16	M/s. Chromomatie Industries, Prakash Mill Compound, Bombay-13.	5	..	..
17	Fleet Ways, 41, Waroda Road, Bombay-50.	6	..	..
18	International Tourist Taxi Service, Malabar Hill, Bombay-6.	2	1	..
19	M/s. Makharia Trade and India P. Ltd., 203, Kalbadevi Road, Bombay-2.	5	1	..
20	Adarsh Trading Company, 206, Kalbadevi Road, Bombay-2.	12	..	1
21	Shri Ramniranjan Kadia, Chamber Bhavan, 2nd Floor, 266, Kalbadevi Road, Bombay.	10	..	..
22	Shri Ramesh A. Waizale, 170-D, Khadilkar Road, Bombay-4.	7	..	..
23	Hemraj Garage, 35-A to Z Industrial Estate, Fergusson Road, Bombay-13.	2	..	..
24	Rajkamal Travel Corporation, 206, Kalbadevi Road, Bombay-2.	7	..	..
25	The Car Mart Pvt. Ltd., Kapoor Mansion, S. Patkar Marg, Bombay-7.	4	..	..
26	M/s. Prince Automobiles, Napean Sea Road, Bombay-6.	4	..	..
27	Kedia Trading Co., 266, Kalbadevi Road, Bombay-2.	4	..	..
28	Raju Hire (International), Baldota Bhuvan, 5th Floor, 117, M. Karve Road, Bombay-20.	3	..	..
29	Hemraj Motor Company, 35-A to Z Industrial Estate, Fergusson Road, Bombay-13.	3	..	..
30	Mohamad Noor Mehd. Dinath, 202/228, Falkland Road, Bombay-4.	4	..	..
31	India Tourism Development Corporation, 123, Queens Road, Bombay-20.	8	7	..

ALL INDIA RADIO

It was in 1926 that the idea of a regular broadcasting service in India took shape for the first time in the form of an agreement between the Government of India and a private company called the Indian Broadcasting Company Limited. Before that date there were a number of amateur radio associations which had been permitted to broadcast on very low power transmitters in various parts of the country and were granted a proportion of the licence fees. Under the agreement a licence for the construction of two stations one each at Bombay and Calcutta was granted. Accordingly the Bombay Radio Station was inaugurated on 23rd July 1927, while the Calcutta Radio Station was inaugurated on 26th August 1927. At that time these radio stations were medium wave stations and had a power of 1.5 KW. Their effective range was only 30 miles. When the Bombay station was inaugurated, the number of licensed listeners in India was less than thousand.

After a short life of three years the Indian Broadcasting Company Limited went into liquidation on 1st March 1930. The then Government acquired the assets of the company and decided to run the two stations *viz.*, Bombay and Calcutta on experimental basis for a period of two years from 1st April 1930, and finally in May 1932 the Government had decided to continue the Indian State Broadcasting Service under their management, and placed it under the administrative control of the Department of Industries and Labour. During the subsequent period there was a steady expansion in the Indian State Broadcasting Service. In June 1936, " All India Radio " replaced the earlier name of the " Indian State Broadcasting Service ". Besides the increase in the number of broadcasting stations the activities of the department also widened considerably. Broadcasting was transferred to the Department of Information and Broadcasting in October 1941. This department was reconstituted as the Department of Information and Arts from the 23rd February 1946. The name of the department was again changed to the Department of Information and Broadcasting from 10th September 1946.

Studios and Transmitters : After being taken over by the Government of India, the Studio of All India Radio, Bombay, was located in the Central Government offices building, Queen's Road. At the beginning there were only 10 studios available for broadcasting. With the gradual expansion of the programme activities after Independence, it was decided to have a separate building for broadcasting in Bombay, specially for studio and accordingly the present building called " Akashwani Bhavan ", near the Mantralaya, was built in Backbay Reclamation area. The offices of the studios were shifted to the present premises in October 1968.

The Bombay station of the All India Radio operates five broadcast services, three on medium wave and two on short wave. The wave length and frequencies of the medium wave broadcast services are given below:—

Broadcast service	Wave length in M.	Frequencies in Kc/s per second
Bombay-A	288.5	1040
Bombay-B*	545.5	550
Vividh Bharati*	243.9	1230

The transmitters are located at Malad, a suburb of Bombay about 25 km. from the new broadcasting centre, from where programmes are fed by land lines, though two FM links are available as standby.

As the area of the studios and offices was limited, being only 400 sq. metres, a multi-storeyed building was required to accommodate the 15-production studios, an auditorium to sit 650 persons and office accommodation amounting to 2,000 sq. metres. The layout of the complex has been planned so that functionally related activities are provided for in three separate main blocks accommodating studios, offices and the auditorium.

There are three studios for music, two for drama, two for talks, five for play-back, two for community and rural programmes and one large studio for national programmes in the Akashwani Bhavan, Bombay. The studio for national programmes is designed so as to accommodate an audience of 100 persons. The main control room is located on the third floor almost centrally with respect to all the studios on the three floors.

The technical facilities such as, recording, dubbing, servicing, etc. are also attached to these above-mentioned studios.

Programmes : Broadcasting services of " All India Radio ", Bombay station consist of broadcasting in Marathi, Gujarati, English, Hindi, Urdu, Kannada, Konkani, Sindhi and Sanskrit. The programmes in all these languages are broadcast in two channels, Bombay ' A ' and Bombay ' B '. Marathi being the State language it is given its due importance and is broadcast on Bombay ' B ' channel, which has a high power medium wave and a medium power short wave transmitter to give these programmes a better and wider coverage. Programmes in Konkani are also broadcast on the Bombay ' B ' channel to enable the listeners at far off places in Maharashtra State to have a better reception of the Konkani programmes. The programmes in the other languages are broadcast on Bombay ' A ' which has a medium power MW transmitter providing adequate coverage to the listeners in and around Bombay. Apart from

* These services are also operated on the short waves, the wave lengths varying according to the season and the part of the day.

these, Bombay is also broadcasting " Vividh Bharati " light entertainment programmes on a high power short wave transmitter for a limited duration. For the rest of the period this short wave transmitter is utilised for the broadcast of external services programmes. Commercial broadcasting service attached to Bombay station, however, caters to the needs of the listeners by a variety of entertainment programmes and film music for over fourteen hours a day. The programmes of commercial broadcasting service are broadcast on a medium power transmitter from Bombay.

Besides, Bombay station is originating some programmes for its overseas listeners in Gujarati, and relays from Delhi the external services programmes in Hindi and Gujarati. News bulletins in Konkani also originate from Bombay for the overseas listeners.

Programmes broadcast from Bombay include music, discussions, plays, and features for the general listeners. Music accounts for a major portion of the programme broadcast and comprises of Hindustani, Karnatak and Western music—both classical as well as light. In addition, programmes for special audience like children, women are also broadcast. Pogrammes for schools are also broadcast on school working days at specific timing. The spoken word and programmes for special audience referred to above are broadcast in Marathi, Gujarati, Hindi and English. Programmes in Marathi for the benefit of industrial workers and in Konkani are also broadcast everyday.

With a view to creating a sense of involvement of the youth, mass media of communication programmes intended for the youth by the youth are now being broadcast from Bombay since 1970. *Yuva Vani* programme in Marathi is now being broadcast three days in a week on Bombay ' B ' channel, while on Bombay ' A ' channel, *Yuva Vani* programmes are broadcast twice in English, once in Gujarati and once in Hindi every week.

Rural broadcasts are originated by the medium wave station and are relayed on Bombay ' B ' channel. Short wave coverage is specially given to the Sindhi programmes.

Bombay station is originating two regional news bulletins in Marathi. It also originates two news bulletins in Konkani. The above mentioned bulletins are in addition to the various national news bulletins in Hindi, English, Marathi, Gujarati and Sindhi relayed from Delhi everyday.

BOMBAY TELEVISION CENTRE

Television is a new innovation in India which made its appearance first in Delhi on 1st August 1959 and then in Bombay on 2nd October 1972. This scheme was introduced for the first time in the country as a pilot scheme, operating from All India Radio's Television Centre. As the most modern media of mass communication the Community Television Scheme is expected to play a vital role.

The Bombay Television Centre was erected with the help of West Germany, which had provided the equipments and technical assistance for setting up this centre with relay facilities at Pune. For relaying the micro-waves a TV tower of about 1,000 feet is erected at Worli in Bombay. This television centre started with a programme for two hours and fifteen minutes daily, which has now (1983) been increased to 5.00 hours on week days and 7.00 hours on Sundays.

The television equipment was offered to Bombay centre by West Germany as a gift valued at Rs. 1.13 crores.

For relay to Pune station, the micro-wave between Bombay and Pune is set up by the Department of Overseas Communications from satellite communications. The transmitter at Pune is a part of technical configuration of the Bombay station.

POST OFFICES

As early as 1661 letters from London to Western India were despatched in duplicate *via* Leghorn, Marseilles and Aleppo, and answers to them were usually sent at intervals by any merchant-vessel that might be bound for an English port. But no attempt to establish any sort of inland post-office appears to have been made until 1688 when the Court of Directors desired the Council at Bombay to erect a post-office for all letters to be brought to and delivered. Thus the postal arrangements were introduced in Bombay in 1694.* The first definite attempt to establish overland and inland communication dated back to the year 1787 when an agent was appointed in Egypt to supervise the interchange of despatch between England and India. On the 30th November every year one of the Company's armed cruisers left Calcutta with the Bengal correspondence, called at Madras and Bombay, and thence sailed to Suez, where the agent took charge of the mails and in due course despatched the cruiser back to India with the home letters. The cruiser carried private letters also. The year 1787 also witnessed the appointment of a postmaster at Bombay for organizing regular communication with Madras. The letters were carried to and fro by *kasids* or messengers, four pairs of whom were stationed at each of the Presidency towns; and once a fortnight one pair in turn set forth from either centre by way of Pune and Hyderabad, taking 25 days to complete the single journey.†

The next forward step was the establishment of a General Post Office for the Presidency in 1794. Messengers were employed to deliver letters throughout the town and collect a delivery fee. Four years later, on the 1st January 1798, regular monthly communication between Bombay and England *via* Persian Gulf was established, the mails being regularly

* G. N. Rane, *Mumbaiche Varnan*, p. 224.

† *Bombay Town and Island Materials*, Vol. II, pp. 13-16.

despatched on the first day of every month. The opening year of the nineteenth century witnessed further progress in inland postal arrangement. In 1825 a *bangy* establishment was at work, consisting of 20 hamals or carriers, stationed in pairs at 10 different places between Bombay and Pune who carried the post in covered cane-basket. The head office in Bombay despatched the Pune post three times a week *viz.*, Monday, Wednesday and Friday. A daily *dak* was opened in the same year between Bombay and Malegaon *via* Bhiwandi and Nashik and was thereafter used exclusively as a route for letters addressed to Mhow and upper India. For the greater convenience of urban residents the first branch post-office in the island was opened at Byculla in 1832. In 1850 a commission was appointed to report on the working of the post-offices throughout India, and the result was the promulgation of Act XVII of 1854 (the Indian Postal Act) which marks the commencement of the organization of inland post-office on its present footing. During 1856 conveyance of mails between Bombay and Karachi, thrice a month was commenced. The Indian Postal Act of 1854 was in due course repealed by Act XIV of 1866, under the terms of which the value payable and money-order systems were introduced into Bombay in 1880, and the prepayment of parcel-postage in cash instead of postage labels initiated in the following year. Inland service postcards were first issued in Bombay in 1881-82; the registration fee was also reduced; and in 1882 a postal savings bank was instituted. Finally the Act of 1866 was superseded by Act VI of 1898, which conferred extended protection and powers, and provided for postal insurance, the value payable post, and the money-order system. A detailed history of Postal services in Bombay is given in the *Gazetteer of Bombay City and Island*, Vol. I, 1909.

At present the Greater Bombay district is served by five postal divisions, *viz.*, (1) South Division, (2) City North Division, (3) City North-east Division, (4) City East Division and (5) City West Division. Besides the chief receiving and disbursing office *i.e.*, General Post Office, the district contained 221 sub-post and branch post-offices including 78 delivery post-offices in Greater Bombay district during 1975-76. During the same year as many as 3,274 postmen were engaged, and there were 1707 letter boxes.

The Airport sorting office (foreign) deals with inward and outward air-borne letter and parcel mails. It is an office of exchange for all Western countries and part of Eastern countries. During 1975-76, 1,89,040 inward parcels and 11,228 outward parcels were handled at this office. The foreign post ' A ' section (Ballard Estate) deals with inward and outward sea-borne letter and parcel mails. It also deals with the foreign inward money-orders. During 1975-76, 2,47,280 inward parcels and 1,43,108 outward parcels were handled by this office. During the same year

1,44,108 foreign inward money-orders were received and disposed off by this post-office.

TELEGRAPHS

In 1852, the Court of Directors of the East India Company sanctioned the construction of lines for electric communication from Calcutta to Peshawar in the extreme North, to Bombay in the West, and Madras in the South. The Assistant Superintendent of the Electric Telegraph in Bombay was appointed during the same year. He had laid an underground wire from his office opposite the old Secretariat to the Esplanade and gradually it was extended upto the Government House, Parel. This was the first electric circuit established in the town of Bombay. The initial section of the first outward line from Bombay to Thane was completed on the 8th February 1854, and by the 18th May in that year electric communication was established between Bombay and Calcutta. Bombay was put into direct communication with Madras in 1855. The main office was shifted from the Old Secretariat to Apollo Street, afterwards to a spacious building in Tamarind Lane. By 1859 Bombay was linked with other parts of India by four main lines. The first connected Bombay with Matheran; the second linked Bombay with Madras including Pune in its circuit; Satara with a branch to Mahabaleshwar and Kolhapur and Belgaum with a branch to Sawantwadi, Vengurla, Dharwad and Gadag; the third line linked Bombay and Agra with branch offices at Thane, Nashik, Malegaon, Dhule and Shirpur; and the fourth line between Bombay and Karachi allowed telegraphic communication with Thane, Nashik, Surat and some other places of Gujarat and Hyderabad (Sind). The total number of messages disposed off in the Bombay Circle was 43,228 during 1859-60.

On the 15th May 1864 Bombay was put in communication with Europe *via* Turkey and the cable route from Bombay *via* Aden and Suez was opened in the spring of 1870. During 1880 local telegraph offices were established at Masjid and Pydhuni for the benefit of native merchants.[1]

At present (1977) besides the Central Telegraph office the Greater Bombay district contains 95 telegraph offices including 15 Departmental Telegraph offices, spread over in various parts of Greater Bombay. The Departmental Telegraph offices are located at : (1) Chinchbunder, (2) Kalbadevi, (3) Dadar, (4) Matunga, (5) Khar, (6) General Post Office, Fort, (7) Cumballa Hill, (8) Byculla, (9) Girgaum, (10) Jacob Circle, (11) Parel, (12) Chembur, (13) Santacruz, (14) Air Port, and (15) Colaba.

[1] For detailed history of Telegraphs in Bombay, refer *The Gazetteer of Bombay City and Island*, Vol. I, 1909, pp. 381-88.

The following statement shows the statistics of telegrams booked in Bombay city, since 1968-69 to 1982-83:—

Year	Telegrams booked at		
	Central Telegraph office	City Departmental Telegraph offices	Total
1968-69 ..	23,36,261	15,00,056	38,36,317
1969-70 ..	24,37,624	15,27,424	39,85,048
1970-71 ..	29,19,347	16,27,552	41,46,899
1971-72 ..	25,86,448	16,04,177	41,90,625
1972-73 ..	26,84,855	16,03,137	42,87,992
1981-82 ..	36,43,489	18,91,610	55,35,099
1982-83 ..	37,30,637	19,17,380	56,48,017

Wireless Stations : During 1984 there were as many as 15 wireless stations located within the limits of the Greater Bombay Municipal Corporation area.

BOMBAY TELEPHONES

The Bombay Telephone system serves the metropolitan city of Bombay along with Thane. The whole of the area is served by 55 exchanges with a total capacity of 4,60,300 lines (working capacity). All the exchanges are of the automatic type. The vast telephone network of today in this city has developed from a very humble beginning in 1882 when the first telephone exchange using Law's Call Wire Equipment was commissioned at Fort with only 88 lines.

In 1881, the Government of India granted a licence to the Oriental Bell Telephone Co. Ltd. for opening telephone exchanges in Calcutta, Bombay, Madras, Karachi and Ahmedabad. The licence for Bombay was transferred in 1882 to the Bombay Telephone Co. Ltd. which was locally formed with the Bell Telephone Co. Ltd. The first telephone exchange was opened in Fort area on 28th January 1882. Four more exchanges, *viz.*, Colaba, Malabar Hill, Byculla and Mandvi were opened in 1882-83 using the similar equipment *i.e.* Law's Call Wire Equipment. Between 1893 and 1898, the equipment of all these exchanges was replaced by magneto equipment using single wire earth return circuit. During 1905 underground cables were introduced for the first time in Bombay and the earth return circuits were replaced by fully metallic circuits. During 1906, a Central Exchange was opened which gradually replaced all the exchanges previously opened, and by 1910, all the subscribers in Bombay were fed by the central exchange only.[1]

[1] For detailed history of Telephones in Bombay, *see Gazetteer of Bombay City and Island*, Vol. I, 1909, pp. 388-89.

The first exchange on Salsette island was opened at Bandra in 1910, while another exchange was opened at Ghatkopar in 1911. Both the exchanges were using the magneto equipment. During 1922, the equipment at Central and Ghatkopar exchanges was converted into Central battery working. Automatic equipment was installed for the first time in Bombay on 24th May 1924 at Central and Gell Street exchanges with a total capacity of 11,000 lines. The Ghatkopar and Bandra exchanges were also converted into automatic working exchanges between 1928 and 1930. Two new automatic exchanges were also opened each at Naigaum and Andheri during the same period. The Kandivli and Colaba automatic exchanges were opened in 1937 and 1940, respectively. An automatic time announcing machine with disc-records was installed at Central Exchange in 1932.

During 1943, the Government of India exercised their option to purchase the assets of the Bombay Telephone Co. and took over the Bombay Telephone system in April 1943. Since then the Bombay Telephone system has come under the control of the Indian Posts and Telegraphs Department. During the period of World War II and the subsequent few years restrictions were put on the expansion of the Bombay Telephone system due to scarcity of imported equipment. An interim short-term scheme to meet the accumulated demands was drawn up in 1948 for the installation of 18,200 lines at a cost of Rs. 3.4 crores. Under this short-term development plan, the then existing exchanges were expanded using the latest type of automatic equipment. The Byculla Automatic exchange was opened in 1950 and during 1951-59, expansions were undertaken at Naigaum, Andheri, Central and Byculla exchanges. Two new telephone exchanges *viz.*, '26' and '24' (both from Central) were opened in the year 1955 to work on " six-digit " basis. During 1957, a portion of " five-digit " equipment at Central was converted to work on " six-digit " basis, thus opening the ' 25 ' Exchange. The equipment at Colaba was also converted to " six-digit " working in May 1959. The " six-digit " working was introduced in various exchanges to fit into the overall structure of the long-term development plan of the Bombay Telephone system. During 1958 the disc-records automatic time announcing machine at Central was replaced by the tape-record type machine.

The cross bar trunk automatic exchange (TAX) was commissioned in City Telephone Building on 29th March 1969. The subscriber trunk dialling system with Pune was introduced on the same date. Upto 1982* the subscriber trunk dialling service, with trunk auto exchange, was available with the following places : (1) Agra, (2) Ahmedabad, (3) Ambarnath, (4) Amravati, (5) Belgaum, (6) Bhiwandi, (7) Bangalore, (8) Bhopal,

* During 1985 the number of STD stations increased to 252.

(9) Calcutta, (10) Chandigarh, (11) Coimbatore, (12) Dombivli, (13) Gandhinagar, (14) Hyderabad, (15) Indore, (16) Jaipur, (17) Jaisinghpur, (18) Jalgaon, (19) Jullunder, (20) Kalwa, (21) Kalyan, (22) Khamgaon, (23) Kolhapur, (24) Madras, (25) Madurai, (26) Mangalore, (27) Miraj, (28) Nagpur, (29) Nashik, (30) New Delhi, (31) Panaji, (32) Pune, (33) Raipur, (34) Rajkot, (35) Sangli, (36) Surat, (37) Thakurli (MIDC), (38) Vasco and (39) Vashi.

Besides the STD service, the long distance services, the delay trunk working service and the demand services are also available from Bombay. The delay trunk working service (228 positions manual trunk exchange) is available to all exchanges in India. The demand service is available to the following places :—

(1) Bhiwandi, (2) Dombivli, (3) Panvel, (4) Kalyan, (5) Ulhasnagar, (6) Ambarnath, (7) Baroda, (8) Akola, (9) Rajkot, (10) Jamnagar, (11) Dhule, (12) Bangalore, (13) Secundarabad, (14) Kolhapur, (15) Hubli, (16) Solapur, (17) Calcutta, (18) Jaipur, (19) Vashi, (20) Ahmedabad, (21) Ahmadnagar, (22) Alibag, (23) Aurangabad, (24) Vasai, (25) Bhandara, (26) Bhavnagar, (27) Bhir, (28) Buldhana, (29) Chandrapur, (30) Kalwa, (31) Karad, (32) Nanded, (33) New Delhi, (34) Osmanabad, (35) Parbhani, (36) Pune, (37) Ratnagiri, (38) Satara, (39) Vasco, (40) Virar, (41) Wardha and (42) Yavatmal.

The international manual trunk exchange which was at Pune was transferred to Bombay on 15th August 1969 and is located at the Videsh Sanchar Bhavan.

At present (1984) the Bombay Telephone serves the area of Greater Bombay, a portion of Thane district and Thane-Belapur industrial belt, totalling an area of 668 sq. km. It also serves a population of about 8.88 millions. It has as many as 55 exchanges. The equipped telephone capacity of all these exchanges is 4,60,300, while the working telephone lines are 3,86,092. The equipped telex capacity in Bombay is 3,550, while, the working telex lines are 2,599. The number of Private Branch Exchanges and Private Automatic Branch Exchanges was 5,109, while the number of the equipped Private Wires and the Private Wires working was 3,652 and 2,680, respectively in 1975-76.

During 1975-76 the per line calls of local and subscriber trunk dialling came to 16 per day, while the per line calls of manual trunk numbered 2.08 per month. The underground cable length and the underground conductor length of the Bombay Telephones measured to 6,818 km. and 28,34,847 km., respectively, during 1975-76. The number of persons employed during the same year was 12,097 of whom 8,633 were males and the rest were females. The Bombay Telephones had as many as 104 vehicles in operation during 1975-76.

The following Table No. 23 gives the statistics of direct exchange working lines in December 1984:—

TABLE No. 23

TELEPHONE EXCHANGES, EQUIPPED CAPACITY AND WORKING LINES OF BOMBAY TELEPHONES AS ON 31ST DECEMBER 1984

Serial No. (1)	Exchange Code No. (2)	Name of Exchange (3)	Equipped Capacity (4)	Working Lines (5)	Date of opening (6)
1	21	Colaba	7,200	6,248	1940
2	22	Cooperage-III	5,400	4,096	26-3-1980
3	23	Cooperage-I	5,400	4,157	9-4-1977
4	24	Cooperage-II	5,400	4,259	31-7-1978
5	202	Cooperage-IV	10,000	8,019	11-11-1983
6	25	City-I	10,000	9,038	11-11-1967
7	29	City-II	10,000	9,008	14-8-1968
8	31	City-III	10,000	9,130	11-11-1967
9	26	Central	10,400	8,977	1924
10	27	Fountain	5,400	4,675	31-3-1976
11	32	Mandvi-I	10,000	8,971	2-5-1962
12	33	Mandvi-II	10,000	7,301	2-5-1962
13	34	Mandvi-III	9,000	7,137	30-3-1974
14	35	Gamdevi-I	10,000	9,021	28-11-1965
15	36	Gamdevi-II	10,000	8,712	28-11-1965
16	38	Gamdevi-III	10,000	8,467	5-9-1970
17	812	Malabar Hill-I	10,000	8,958	26-5-1978
18	822	Malabar Hill-II	10,000	9,047	29-11-1978
	828	Malabar Hill-II Extn.	2,800	2,010	25-4-1983
19	37	Byculla-I	8,100	6,343	28-11-1965
20	39	Byculla-II	8,100	6,190	23-12-1972
21	89	Byculla-III	10,000	7,841	15-10-1977
22	86	Mazgaon-I	10,000	8,971	6-9-1980
23	872	Mazgaon-II	10,000	8,215	10-3-1983
24	851	Mazgaon-III	10,000	4,489	8-6-1984
25	492	Worli-I	10,000	6,663	3-12-1983
26	44	Naigaum	4,000	6,982	1928
27	882	Wadala	10,000	9,478	10-6-1982
28	45	Shivaji Park-I	8,000	7,458	1-5-1965
29	46	Shivaji Park-II	8,000	7,475	30-11-1974
30	422	Prabhadevi	10,000	8,450	12-3-1981
31	512	Ghatkopar-I	10,000	9,465	29-2-1980
32	513	Ghatkopar-II	10,000	9,200	12-3-1983
33	47	Matunga-I	6,000	5,633	17-11-1962
34	48	Matunga-II	6,000	5,657	15-8-1972
35	50	Thana-II	6,400	3,352	30-3-1976
36	59	Thana-I	5,300	3,047	21-11-1964 Manual Exch. replaced by Auto.

TABLE No. 23—*contd.*

Serial No. (1)	Exchange Code No. (2)	Name of Exchange (3)	Equipped Capacity (4)	Working Lines (5)	Date of opening (6)
37	52	Chembur ..	8,900	7,391	6-4-1983
38	551	Mankhurd ..	10,000	8,608	30-4-1983
	555	Mankhurd Extn. ..	2,000	1,556	10-2-1984
39	58	Pawai ..	7,800	5,676	2-2-1963
40	561	Mulund-I ..	10,000	7,717	7-6-1984
	560	Mulund-I Extn. ..	3,000		
41	53	Khar-I ..	10,000	9,001	22-5-1964
42	54	Khar-II ..	10,000	9,172	31-3-1973
43	62	Andheri-II ..	10,000	8,688	3-1-1976
44	57	Andheri-I ..	9,800	8,341	9-5-1963 Old Exch. replaced.
45	612	Vile-Parle-I ..	10,000	9,260	31-3-1982
46	614	Vile-Parle-II ..	10,000	9,204	1-6-1983
47	632	Marol-I ..	10,000	8,489	11-10-1982
	630	Marol-I Extn. ..	2,000	1,515	10-2-1984
48	604	Marol-II ..	10,000	6,765	5-5-1984
49	65	Borivli-II ..	4,000	3,643	25-10-1980
50	66	Borivli-I ..	4,800	4,373	4-5-1963
51	68	Malad-II ..	6,000	5,469	31-3-1976
52	69	Malad-I ..	8,600	7,552	25-1-1965
53	698	Bhayander ..	700	503	17-11-1977
54		Washi ..	1,100	619	6-9-1975
55		Kalwa ..	700	410	3-12-1980
		Total ..	4,60,300	3,86,092	

Note.—1,209 Nos. in Byculla-I and 3,573 Nos. of Naigaum exchanges are working in scrapped group.

TELEX

Telex provides automatic communications through printed words between the subscribers in cities and towns provided with telex exchanges. Telex subscribers establish their own communications to the required party dialling a station code followed by the telex number of the called party. There are as many as 68 telex stations in India including Bombay. Bombay's code No. is '011'. The equipped capacity of the Bombay Telex Station was 3,550 in 1975-76, while the telex working lines of the station during the same year were 2,599, which increased to 3,203 as on 31st March 1977.

OVERSEAS COMMUNICATIONS SERVICE

The Overseas Communications Service with headquarters at Videsh Sanchar Bhavan, Bombay, is under the Ministry of Communications of

the Government of India. It is responsible for providing, operating and maintaining the external telecommunication facilities of the country.

Submarine Telegraph Cable Service : Bombay was put in communication with Europe *via* Turkey on 15th May 1864. The London-Bombay Telegraph service *via* submarine cable was inaugurated on 23rd June 1870.[1] Prior to this date, Overseas contact was only through letters by seamail often by sailing ships. However, from 1870 to 1927 cable was the only medium for telecommunications. The Radio Telegraph service was opened for the first time to the West between India and the U.K. on 23rd July 1927 and to the East between India and Japan on 10th January 1973 by a private company called Indian Radio Telegraph Co. Ltd. which worked in competition with the cable companies. The British Marconi Co. owned controlling interest in Indian Radio Telegraph Co. Ltd. The radio transmitting station for this purpose was installed at Dighi, about 13 km. from Pune, and the Radio Receiving Station at Daund about 64 km. from Pune.

The radio telephone service with London was established on 1st May 1933.

In July 1945, the Commonwealth Telecommunications Conference was held in London which recommended that all Commonwealth and Empire Governments should own and operate their own overseas telecommunications. Accordingly, the external telecommunication of India operated by the I.R.C.C. Company Ltd. was taken over by the Government of India with effect from 1st January 1947 and formed into a separate department known as the Overseas Communications Service (OCS) under the Ministry of Communications.

Radio Photo Service : In 1943, during the War, a radio photo service was opened from India. During the subsequent years this service was made available from all overseas communications service centres.

Press Broadcast Transmission Service : After Independence the Government desired the means for rapid and cheap dissemination of her news to and through her own embassies and representatives abroad. Therefore, overseas communications service organised the telegraph broadcasts transmission service for this purpose.

By this system the Government summarises the news which are being regularly broadcast on different daily schedules from New Delhi centre simultaneously on two frequencies since July 1948. This information is regularly picked up directly by Indian Missions in about 43 foreign countries for dissemination to the local press.

[1] For detailed history of overseas telegraphs from Bombay to Europe (1864), *see Gazetteer of Bombay City and Island*, Vol. I, 1909, pp. 385-86.

Press-Cast Transmission/Reception Service : A somewhat similar telegraph news-cast service is operated on daily schedules from Bombay for the Press Trust of India. The overseas communications service also carries out reception of foreign radio telegraph, telegraph/press broadcasts on behalf of press agencies. At present receptions of nine such foreign press broadcasts are carried out on behalf of three Indian News Agencies, *viz.*, Press Trust of India, United News of India and Samachar Bharati.

Programme Transmission Service : Facilities are provided on the overseas telephone circuits for the transmissions *i.e.* spoken dispatches by representatives and correspondents of broadcast organizations for re-broadcast on their present broadcast networks.

Leased Channel Service : The leasing on private line teleprinter channels to customers began as a new service since December 1957. In 1977 there were as many as 73 such leases.

Installation of First Earth Station : The first earth station of India was established at Arvi, near Pune on February 1971. The Overseas Communications Service now (April 1977) operates 1st voice-grade channels through the satellite system with access to 32 countries for international telephone, telex, telegraph, radiophoto and other services.

Representation on INTELSAT : India had representation on the governing body of INTELSAT (International Telecommunication Satellite Consortium) by partnership with Sri Lanka, Malaysia, Singapore and New Zealand. Each of the members of this group undertakes representation on the Board for one year in rotation.

Reliability of Satellite Channels : Satellite communications are a state-of-the-art technology deriving support from a multiplicity of disciplines. The management of the space as the earth segment requires managerial techniques sensitive to technological changes and responsive to the demands on skilled and unskilled personnel in exploiting the capital intensive facilities to full use. The OCS earth station complex has a record of performance and reliability fully comparable to the international standard, with a normal monthly reliability of 99·9 per cent.

Second Satellite Earth Station and Terminal Facilities : The second satellite earth station at Dehra Dun and the associated terminal facilities at New Delhi were inaugurated on 25th February 1977. Initially, direct Satellite Communication links from Dehra Dun have been established with U.K., France and Japan.

Technical Facilities at the Videsh Sanchar Bhavan, Bombay : Exploitation of the wideband, high quality stable telecommunication transmission is by the provision of terminal facilities which are located in Videsh Sanchar Bhavan, Bombay, where initially only manual telex and telephone exchanges were installed in 1971. By the end of 1973, semi-automatic

telephone exchange was replaced by the direct operator dialling service. The semi-automatic telex exchange was also replaced by the direct operator dialling service. The semi-automatic telex exchange was pressed into service by the end of 1972, providing for the first time on demand telex service. As a result of these facilities, tremendous increase was registered in the growth of telephone and telex traffic. In order to meet this demand, schemes were initiated for the augmentation of these exchanges. The initial international automatic telephone exchange was planned in 1968 for a capacity of 48 circuits. As per the techniques of that time and prevalent international practices, only semi-automatic *i.e.*, operator dialling facilities were provided.

International Subscriber Dialling Service : Though the original equipment was designed to handle traffic with the assistance of operators, the ingenuity of our engineers was instrumental in providing International Subscriber Dialling Facilities from Bombay to London with effect from 10th October 1976. By this system Bombay is connected with many more foreign countries in the world as also with the several telephone traffic generating centres in India. The capacity of this system was to be augmented to 180 international circuits.

The SPC Telex Exchange Scheme : With the availability of a wideband high capacity satellite communication system since February 1971, the growth of international telex traffic is no longer inhibited on account of limitations of the transmission medium. International telex traffic has registered an increase of the order of 40 per cent, 27 per cent and 55 per cent during the years 1971-72, 1972-73 and 1973-74, respectively.

Schemes under Active Consideration : The OCS has plans for establishment of troposcatter communication links with USSR and Afghanistan. Agreement on the INDO-USSR project has already been signed by India and USSR. The Indo-Afghan tropo link is under study. Proposal for a submarine telephone cable link between Madras and Penang by 1979 was under consideration.

Research and Development in Overseas Communications Service : The Overseas Communications Service recognised the need for having its own Research and Development unit to derive the very essential support for solving operational problems by designing and fabricating individual electronic sub-units for modifying and progressively modernising the operating systems of communications in the field.

Keeping in mind the need for affording departmental training to new entrants also, a Development and Training Section (DTS) was opened within the Pune Branch complex, in 1962. DTS has been making significant contribution and rendering support both in development and training in the field.

ADDENDA

RAILWAYS

The introduction of electric traction in 1925 is an important landmark in the history of Railways. The first electric train rolled out from Victoria Terminus to Kurla *via* the Harbour Branch on the morning of February 3, 1925. Electric traction was further extended from Victoria Terminus to Thane on the main line in 1926. This was followed by the Raoli-Bandra section linking with Western Railway in the same year. The Thane-Kalyan section was electrified in 1929, while the electrification beyond Kalyan upto Pune and Igatpuri was completed in 1930. Extension of the Harbour Branch service from Kurla to Mankhurd was carried out in 1951, the section being provided with double track electrification in stages upto Chembur in 1959, and upto Mankhurd in June 1980.

The colour light signalling system from Bombay V.T. to Raoli junction on the Harbour Branch and from Bombay V.T. to Byculla on the main line was introduced in 1925. This system was extended upto Dadàr in 1956, upto Bhandup in 1961, upto Thane in 1963, and upto Kalyan in 1964.

The daily number of suburban trains to and from Bombay V.T. which were only 150 in 1925 increased to 400 in 1947, 594 in 1962 and 908 in November 1984. The first suburban fast train on the main line was introduced in 1940, when there were only nine such locals in the Down and six in the Up direction. Initially, the local trains from Kalyan to Kasara and to Karjat were run as shuttle services, and through local trains to these destinations from Bombay V.T. were introduced from 1st April 1965. The shuttle trains from Kalyan to Kasara and to Karjat were abolished in October 1976, which were replaced by through local trains from Bombay V.T. A few suburban trains were operated by electric locomotives from Bombay V.T. Thiss ystem was discarded from April 1970 in favour of EMU coaches.

In the beginning the imported EMU stock consisted of four coaches for each unit. Now, each unit consists of nine coaches.

The growth of population and increase in suburban traffic during the last few decades is given below:—

Year	Population		Average passengers commuting daily (in lakhs)			
	Lakhs	Index	Central Railway	Western Railway	Total	Index
1950-51 ..	29.9	100	4.1	4.3	8.4	100
1960-61 ..	41.5	138.8	6.1	6.5	12.6	149.9
1970-71 ..	59.7	199.7	13.2	11.8	25.0	297.6
1980-81 ..	82.4	256.6	20.8	21.3	42.3	503.6

The occupation profile of the users of the suburban trains service is broadly as under :—(1) Students, 8.5 per cent; (2) Self-employed, 22.5 per cent; (3) Government employees, 24.0 per cent; and (4) Private employees, 45.0 per cent.

The average distance travelled by each passenger in suburban train was 14 km. in 1950-51 which increased to 19 km. in 1983-84. Recent traffic studies have indicated that the suburban railways carry about 50 per cent of the total traffic in Bombay.

To cater for future growth in traffic, the Central Railway has planned to optimise the capacity on the existing three corridors in phases to provide the frequency of service of 5 minutes, then 4 minutes to be followed by 3 minutes on every corridor, during the peak period.[1]

SHIPPING

SHIPPING COMPANIES IN BOMBAY (AS ON 30TH SEPTEMBER 1984)

Serial No.	Name of Shipping Company	Coastal		Overseas		Total	
		Ships	G.R.T.	Ships	G.R.T.	Ships	G.R.T.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Shipping Corporation of India Limited.	17	1,67,454	130	29,69,899	147	31,37,353
2	Scindia Steam Navigation Co. Ltd.	..	....	33	4,74,961	33	4,74,961
3	Great Eastern Shipping Co. Ltd.	4	3,908	17	4,00,080	21	4,03,988
4	Mogul Lines Ltd.* ..	3	13,420	16	2,26,963	19	2,40,383
5	Chowgule Steamships Ltd.	..	....	6	1,81,279	6	1,81,279
6	Damodar Bulk Carriers Ltd.	..	....	5	1,37,652	5	1,37,652
7	Dempo Steamships Ltd.	..	....	5	1,12,550	5	1,12,550
8	Essar Bulk Carriers ..	13	53,382	2	54,529	15	1,07,911
9	Larsen and Toubro Ltd.	..	....	5	85,249	5	85,249
10	Surrendra Overseas Ltd.	..	....	6	76,246	6	76,246
11	Seven Seas Transportation Ltd.	..	....	3	72,786	3	72,786

[1] Based on information contained in " Diamond Jubilee of Electric Traction—Resume ", prepared by the Central Railway (February 1985).

* Mogul Lines Ltd. was amalgamated with the Shipping Corporation of India in August 1984.

Serial No.	Name of Shipping Company	Coastal		Overseas		Total	
		Ships	G.R.T.	Ships	G.R.T.	Ships	G.R.T.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
12	Jayshree Shipping ..	..	....	5	67,772	5	67,772
13	Tolani Shipping Co. Ltd.	..	....	3	47,515	3	47,515
14	Sagar Shipping Co. Ltd.	..	....	2	31,508	2	31,508
15	Continental Shipping Corporation Ltd.	..	....	1	29,966	1	29,916
16	Pent Ocean Steamships (Private) Ltd.	..	....	3	28,318	3	28,318
17	Hede Navigation Pvt. Ltd.	1	629	2	25,711	3	26,340
18	Garware Shipping Corporation Ltd.	5	4,405	3	20,789	8	25,194
19	Varun Shipping Co. Ltd.	5	25,141	..	....	5	25,141
20	Mackinnon Mackenzie and Co. Ltd.	..	....	3	24,958	3	24,958
21	South East Asia Shipping Co. Ltd.	..	....	3	21,994	3	21,994
22	Indoceanic Shipping Co. Ltd.	..	....	4	19,263	4	19,263
23	Century Shipping ..	..	....	3	16,267	1	16,267
24	Thakur Shipping Co. Ltd.	..	....	3	15,376	3	15,376
25	Parekh Ocean Carriers Ltd.	..	....	2	14,576	2	14,576
26	Messrs. Jaldoot Shipping Private Ltd.	..		2	14,257	2	14,257
27	Maini Shipping Pvt. Ltd.	2	7,819	2	5,992	4	13,811
28	Tata Chemicals Ltd.	..	....	1	13,325	1	13,325
29	Tolani Limited	..	....	1	13,007	1	13,007
30	Panchsheel Shipping Co. Ltd.	..	....	3	7,877	3	7,877
31	West Asia Shipping Pvt. Ltd.	..	....	2	7,767	2	7,767
32	Nirvan Shipping Co. Pvt. Ltd.	..	....	2	6,446	2	6,446
33	Ballarpur Industries Ltd.	1	6,136	..	....	1	6,136
34	Universal Shipping Co. Pvt. Ltd.	1	2,671	1	2,943	2	5,614

Serial No.	Name of Shipping Company	Coastal		Overseas		Total	
		Ships	G.R.T.	Ships	G.R.T.	Ships	G.R.T.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
35	Streamline Shipping Co. Ltd.	..		2	4,717	2	4,717
36	Western Star Line Pvt. Ltd.	2	3,059	..	....	2	3,059
37	Deccan Shipping Ltd.	..	....	1	2,989	1	2,989
38	Durga Steamships Pvt. Ltd.	..	....	1	2,873	1	2,873
39	Messrs. Allasons Pvt. Ltd.	..	....	1	2,359	1	2,359
40	Messrs. Arcot Shipping Co. Pvt. Ltd.	1	2,000	..	....	1	2,000
41	Messrs. Vijaya Line Pvt. Ltd.	..	....	1	2,356	1	2,356
42	Morcator Ship Management.	1	1,996	..	....	1	1,996
43	Messrs. Mangla Bulk Carriers Ltd.	2	1,736	..	....	2	1,736
44	Messrs. Bombay Marine Engineering Works Pvt. Ltd.	1	499	2	960	3	1,459
45	Messrs. Reshamwala Pvt. Ltd.	..	....	1	1,220	1	1,220
46	T.P.S. Shipping Co. Pvt. Ltd.	1	1,179	..	....	1	1,179
47	Darabshaw B. Cursetjee's Sons Shipping Co. Ltd.	2	875	..	....	2	875
48	Messrs. Morcator Lines Ltd.	1	569	..	....	1	569
49	Shaparia Dock and Steel Co. Pvt. Ltd.	1	530	..	....	1	530
50	Sujwala Shipping Co. Ltd.	..	....	1	489	1	489
51	Shaparia Shipping Co. Ltd.	1	483	..	....	1	483
52	Messrs. Atlas Shipping Ltd.	1	461	..	....	1	461
	Total ..	66	2,98,352	287	52,45,784	353	55,54,927

Source : Directorate General of Shipping, Bombay.

STATE TRANSPORT

ROUTES EMANATING FROM BOMBAY AND PAREL DEPOTS

(Operated by these depots as in December 1984)

Serial No.	Route	Route distance (km.)	Number of return trips per day
(1)	(2)	(3)	(4)
	Bombay Depot		
	Inter-State routes		
1	Bombay–Indore	610.2	4
2	Bombay–Ujjain	666.2	2
3	Bombay–Panaji	599.6	6
4	Bombay–Maroshi	640.0	2
5	Bombay–Nageshi	640.9	2
6	Bombay–Madgaon	711.4	2
7	Bombay–Sadashivgad	1,027.8	2
8	Bombay–Bangalore	992.8	2
9	Bombay–Mangalore	506.5	2
10	Bombay–Panaji (Night)	587.9	1
	Inter-Region routes		
1	Bombay–Shirdi	272.3	2
2	Bombay–Ale Fata	194.5	2
3	Bombay–Kaikali	285.0	2
4	Bombay–Shirdi (Night)	272.5	1
5	Bombay–Mahabaleshwar *via* Pune ..	284.8	1
6	Bombay–Mahabaleshwar *via* Mahad ..	237.7	1
	Inter-Division routes		
1	Bombay–Karjuve	315.1	4
2	Bombay–Kase	310.5	2
3	Bombay–Kelshi	232.7	6
4	Bombay–Mapral Ambet	181.0	2
5	Bombay–Nashik	182.1	6
6	Bombay–Malvan (Luxury)	505.9	2
7	Bombay–Bhiwandi (Luxury).	50.1	4

Serial No.	Route	Route distance (km.)	Number of return trips per day
(1)	(2)	(3)	(4)
8	Bombay–Sudhagad Pali	122.4	2
9	Bombay–Velas	266.9	2
10	Bombay–Uchat	82.0	2
11	Bombay–Shiroshi Kargi	257.4	2
12	Bombay–Dahiwali (alternate day) ..	259.7	2
13	Bombay–Birmani (alternate day)	260.7	2
14	Bombay–Bhiwandi	50.1	16
15	Bombay–Lipaniwave–Toradi	200.7	2
16	Bombay–Durgewadi (alternate day) ..	297.0	2
17	Bombay–Hajimalang	63.0	2
18	Bombay–Ganeshpuri	80.7	Frequencies—as per passengers.
19	Bombay–Ganeshpuri–Vajreshwari	82.0	Do.
	Parel Depot		
	Inter-State routes		
1	Parel–Panaji	582.4	1
	Inter-Region routes		
1	Parel–Varkute	305.6	2
2	Parel–Pusesawali	335.7	2
3	Parel–Pusesawali (Night)	314.4	2
4	Parel–Sonsal	361.5	2
5	Parel–Bori	211.3	2
6	Parel–Borivli–Shirdi	291.2	2
7	Parel–Jyotiba	414.5	2
8	Parel–Kharasundi	402.8	2
9	Dadar–Pune (Asiad)	154.2	Frequencies—as per passengers.
10	Dadar–Pune	154.2	19
11	Mantralaya–Pune	179.2	2

Serial No.	Route	Route distance (km.)	Number of return trips per day
(1)	(2)	(3)	(4)
	Inter-Division routes		
1	Parel–Shirgaon	257.0	1
2	Parel–Arnala	541.0	1
3	Parel–Shirala	535.0	1
4	Parel–Narali	512.5	1
5	Parel–Vengurla	512.2	1
6	Parel–Cherawane (alternate day)	300.6	1
7	Parel–Tamanmala (alternate day) ..	300.2	1
8	Parel–Devachegothane (alternate day) ..	430.6	1
9	Parel–Kusapur	81.0	1
10	Parel–Wakada–Anjorla	236.6	1
11	Parel–Onnawase	264.6	1
12	Parel–Unnaware	264.6	1
13	Parel–Dabhilpangari	279.4	1
14	Parel–Kumbhral	540.3	1
15	Parel–Khudi	400.9	1
16	Parel–Dawali	224.2	1
17	Parel–Vengurla	512.5	1

* * *

CHAPTER 8—MISCELLANEOUS OCCUPATIONS

INTRODUCTION

THE FOREGOING CHAPTERS IN THIS VOLUME dealt with the principal sectors of the economy of Greater Bombay. These sectors, however, do not exhaust the entire field of economic activity in this industrial and commercial capital of India. There are numerous other occupations which provide a means of livelihood to a large section of the working population, and also produce several essential goods of daily consumption. They also provide many essential services to the community. Although it may not be practicable to give an account of all such occupations in this chapter, it is contemplated to give a narration of a few of them.

Obviously these occupations are miscellaneous in character because there is no uniformity in their operation, economic status and the size of the individual establishment. But they are not insignificant in view of their employment potential and usefulness to society. In spite of their being scattered, the employers as well as the employees in these occupations have formed associations or unions of their own. Some of the organisations in this field in Bombay attract the attention of the public as well as Government as regards their demands and rights from time to time. No wonder, therefore, that vested interests have come into existence in this field, although smaller it is.

The conditions of work of most of the workers in these occupations are regulated by various enactments, such as, the Bombay Shops and Establishments Act, the Municipal Corporation of Bombay Act, the Minimum Wages Act, and many others.

The information furnished below is based on the previous edition of the *Gazetteer of Bombay City and Island* (1909–1910), various study reports, Census Reports and personal observations made. Although all attempts are made to make the narration authentic, no accuracy is claimed for the observations due to the peculiar nature of the job involved.

HOTELS AND RESTAURANTS

Records left by travellers show that the hotel trade in Bombay existed as early as 1778. A Persian Translator in the Bombay Army recorded that there were good hotels in Bombay and Madras in the last twenty years of the 18th century when Surat and Bombay started flourishing

in commerce. Prior to this hospitality of the inhabitants was always exercised towards new comers till they could provide a place of residence for themselves. However, upto the middle of the nineteenth century the hotel trade in Bombay did not make any progress. A few public houses which then used to serve a type of punch made the city notorious. There were no hotels in Bombay worth the name and whatever hotel amenity then existed was low class taverns which were mostly frequented by soldiers, sailors, and low class people. The elite, respectable and god fearing people had to be content with the hospitality of the local residents or with hired tents which were pitched on the Esplanade. In 1837, a series of taverns such as Parsee George's, Portuguese George's, Paddy Goose's and Racquent Court under which drinking dens flourished, spread all over the city. However, within a period of about ten years most of the taverns disappeared and a more respectable type of hotel like Hope Hall Family Hotel began to make an appearance since 1837. The Hope Hall Family Hotel was opened at Mazagaon which for many years served as the principal hotel in Bombay.

The first of the residential clubs was established in the premises adjoining stands at the Byculla Race Course, with the express purpose of providing respectable and reasonably priced lodging.

The development of hotel trade since 1840 was rapid. Mr. Pallanjee Pestonjee opened the Victoria Hotel which was usually known as the British Hotel in 1840. He earned a good name in the trade among the civil and military gentry. As a result he moved to better premises on Clare Road and later on opened another hotel in Fort. The British Hotel has long disappeared. About 1862 the Great Eastern Hotel Company was formed, but it failed to leave a mark on Bombay. In 1871, a silk mercer and draper who had amassed wealth in his trade opened the Esplanade Hotel with 130 rooms.

The Watson's Hotel on the Esplanade described as "something like a bird-cage", was in imitation of the palatial new hotels then going up in London and Paris.[1] It opened a new era in the hotel trade in Bombay. It was distinguished in splendour and convenience. For his galleried hotel Watson imported not only iron but also bricks, from Webster's Manufactory in Burham in England. The Watson's which was exclusively for Europeans, has long ceased to function, and the ghost-like building which once housed it stands facing the building of the Bombay University. This iron-pillared building was one of the good buildings in the city in the nineteenth century.

The Taj Hotel, inaugurated in 1904, was the cherished project of the legendary Jamshetji Nusserwanji Tata, an eminent Parsi of Bombay.

[1] Gillian Tindall, *City of Gold* (Temple Smith, London, 1982), p. 175.

It is said that J. N. Tata was once humiliated by asking to leave the then best hotel in Bombay, the Watson's. His pride was shaken, and he decided that he would one day build a hotel of his own which would far exceed the Watson's in its quality. He got it designed in 1896 by a local European firm of architects.[1] The Taj is yet the best in Bombay. Next door to the original Taj is a recent annexe, a rare modern building in Bombay.

In 1923, Mr. Shapurji Sorabji built the Grand Hotel. A few years later the Majestic Hotel was opened. Upto this time almost all the hotels were run on western lines. It was with the establishment of the Sardar Griha and Madhavashram in 1900 and 1908, respectively that the Indian style hotels began to make an appearance.

" Being a port of call, Bombay was readily accessible to artistic talent from abroad, which soon became an attractive feature of local hotel life. As early as 1904, for instance, there was a Criterion Hotel that sported a full-fledged Viennese Orchestra, of nearly 20 members, about 12 of whom were women instrumentalists.

" Then came the age of palatial structures, to accommodate hundreds at a time, that rose up on the finest sites of the city. Bombay's hoteliers, in this era, were second to none in the luxurious appointments of their quarters or in an extravagance of the fare they served from champagne and *pate de foie gras* to the rarest of pickles and curries. Much of the catering in these hotels was done by Italians. In the first quarter of the twentieth century, local hotels reached the peak of their splendour as house of entertainment from the standpoint of food, wine and music. Some of the most gorgeous banquets were given in Bombay during this period, when money flowed lavishly from the swollen purses of the Maharajas, the business magnates and the foreign visitors to Bombay. The music was mainly of the Western classical type, though occasional diversions into the lesser realms of dance music were not unknown. The polka, the mazarka, and the waltz were among the dances that roused the enthusiasm of local votaries of Terpsichore.

" The end of World War I saw the introduction of jazz on a large scale in Bombay. The old classical orchestra went completely out of fashion, and dancing became the rage. The one-step, the tango, the rhumba and the jitterbugs, became in turn, the favourite obsession of local lounge lizards. This was also the era of the cabaret. Some of the finest swing bands in the world, some of the best cabaret artistes and some of the most soulful crooners of dance numbers have taken the floor or stood before the microphone in Bombay's palatial hotels.

[1] Ibid., pp. 26-27.

" The two world wars brought a fresh lot of hotels to Bombay. The Ritz, the Ambassador, West End and Airlines were ' war babies '.

" The post-war world of the late forties of the twentieth century was a world of austerity, of rationing and of strict elimination of luxury and waste. Hotel life in Bombay ceased to be the pageant of extravagant splendour it once was. Bombay's prohibition policy struck another mortal blow at the splendour of this type of existence. Hotels gradually began to serve the sole purpose of accommodating people and of feeding them on the barest of rationed necessities. The age of the champagne dinner, the semi-nude chorus girl and the exotic, sensuous music became a thing of the past.

" The year 1949 saw a big advance in the hotel trade in India. It was placed on an organised basis by the establishment of four regional hotel and restaurant associations with head offices at India's four major cities, Delhi, Bombay, Calcutta and Madras. These four associations were linked in a federation which is affiliated to the International Hotel Association, Paris. It is given representation on the Central Tourist Traffic Advisory Committee and the Regional Tourist Traffic Committee of the Government of India. A special Hotel Consultative Committee has direct access to the Central Government on all matters relating to the trade.

" The foremost amenity provided for visitors to this country is air-conditioned accommodation. ' Grill Rooms ' are attached to all first class hotels in India which invariably provide two sets of menus, one European and the other Indian." [1]

To train students in the catering line, a College of Catering and Institutional Management was established at Andheri in June 1954. Before 1954 India did not have a single institute imparting training in hotel management. The All-India Women's Food Council with the assistance of the Food and Agricultural Organisation of the United Nations established the college. The Government of Maharashtra recognised it as a technical institution. A scholarship trust has been registered in 1974 by the Hotel and Restaurant Association, Western India, for awarding scholarships for education in catering. The provisions of the Apprentices Act have also been extended to the hotel and restaurant industry since 1968, and about 14 trades such as cook, steward, baker and house-keeper have been brought under its fold.

During the period after 1950, almost four times the hotel industry was subjected to various controls on the serving of meals at parties and functions as also on the courses at a regular meal. During this period rationing was in force for about 12 years at varying levels. In 1966-67 the Hotels and Restaurants Co-operative Service Society Ltd. was established to make

[1] J. V. Furtado, *Bombay the Beautiful* (1957), pp. 83-85.

separate arrangement for distribution of the rationed articles to the members of the association. With the co-operation of the Federation of Hotel and Restaurant Associations of India, the Department of Tourism of the Government of India evolved a scheme according to which hotels and restaurants are classified. This has enabled the creation of a section in the hotels to offer accommodation and services of an international standard to foreigners of different categories. Such hotels are known as Star Hotels, amongst which can be mentioned the following ones : Oberoi Sheraton Hotel, Taj Intercontinental Hotel, Centaur Hotel, Sea Rock Hotel, Hotel President, Sun-N-Sand Hotel, Sea Green Hotel, Hotel Natraj, Juhu Hotel, Shalimar Hotel, etc. Besides the old hotels referred earlier, *viz.*, Taj Mahal, Grand Hotel, West End Hotel, Ambassador Hotel, Ritz Hotel and Airlines are still in existence. This list is not exhaustive and is only symbolic.

The hotel occupation includes various trades such as owners and managers of hotels, cook shops, sarais, cafes, restaurants, eating houses and their employees. The total number of workers in this occupation returned during various censuses since 1911 in Bombay are given below :

Year		Persons	Males	Females
1911	..	5,835	5,013	822
1921	..	8,584	7,573	1,011
1931	..	21,113	19,503	1,610
1951	..	48,524	46,725	1,799
1961	..	54,985	54,083	902

LEARNED PROFESSIONS

Teachers, medical practitioners, advocates, engineers, architects, journalists etc., can broadly be grouped under this category. They have a good educational background and specialisation in their respective fields. They have got their own separate organisations which strive for their common interest. In Bombay there are specialists who have earned a national as well as international reputation in almost every field. The city provided a congenial home to top-most doctors, advocates, solicitors, structural and design engineers as well as architects and journalists. Many of them distinguished themselves in foreign countries as well. It is, therefore, no wonder that patients from various parts of the country as well as from the Gulf countries flock to Bombay for medical treatment. A number of members of the Bombay Bar have adorned the Bench of the Supreme Court of India from time to time and have earned a name abroad. The city gave birth to many of the most eminent architects and engineers and professors. A number of them were co-opted on various

international bodies. After the census authorities, these professions have been classified under various small distinct groups like (*i*) Letters, Arts, Journalism and Science, (*ii*) Teaching profession, (*iii*) Medical profession and (*iv*) Legal profession.

Letters, Arts, Journalism and Science : A number of persons earn their livelihood from fine arts like music, dancing and acting. The census authorities under the group of letters, arts, journalism and science have included such professionals like artists, music composers, players on musical instruments, writers and related workers, painters, decorators, sculptors, journalists, photographers, etc. These persons are either employed by institutions or give instructions independently to the students of arts. There are also a few persons who have been honoured with awards and prizes for proficiency in different arts and service to the people.

Professionals such as music composers, musicians, singers, actors, dancers, as also the managers and employees of places of public entertainment, race courses, societies and clubs also do a great service to the people through recreation, and in a city like Bombay where the life is monotonous, relaxation through recreation is an essential service. Naturally there are good recreational facilities in the city and the connoisseurs avail of them by patronising those who are engaged in art. There are ballad singing parties, *tamashas*, dramas, cinema theatres, musicians and singers. There are a number of cinema and drama theatres. Bombay city has every reason to be proud of the best theatre in Asia in the Tata theatre run by the National Council of Performing Arts. The city has a long tradition of theatrical performances over the past about 225 years. A few pages in Chapter 18 of Volume III of this *Gazetteer* furnish the history of Theatre in Bombay which the reader would definitely find interesting and informative.

The total number of professionals returned during various censuses since 1911 are given below. The number of persons engaged in recreational activities is given separately.

Persons engaged in letters, arts, journalism and science in the city—

Year		Persons	Males	Females
1911	..	2,733	2,707	26
1921	..	900	882	18
1931	..	1,989	1,901	88
1951	..	3,369	3,232	137
1961	..	5,622	5,317	305

Persons engaged in recreational activities—

Year		Persons	Males	Females
1911	..	1,774	1,436	338
1921	..	1,631	1,358	273
1931	..	5,532	5,188	344
1951	..	15,047	13,777	1,270
1961	..	14,068	13,122	946

Teaching Profession : The teaching profession includes professors, lecturers, teachers, and research workers. They are employed in the two Universities, 105 colleges, schools and other educational institutions. They meet the growing educational needs of people. The best of education in all the faculties is available in Bombay. Besides general education, professional education is also available. Due to the expansion and quantitative development of educational activities there has been a remarkable increase in the number of persons engaged in this profession which could be seen from the following statement :—

Year		Persons	Males	Females
1911	..	2,687	2,169	518
1921	..	2,450	1,914	536
1931	..	3,350	2,488	862
1951	..	11,583	7,766	3,817
1961	..	24,247	10,849	13,398
1971	..	40,372	15,724	24,648

Medical Profession : Medical practitioners include physicians, surgeons, ayurvedic and homoeopathic doctors, dentists, ophthalmologists, optometrists, oculists, veterinary surgeons, midwives, nurses, vaccinators, compounders, vaids and hakims. It is a lucrative and prosperous profession and an increasing number of persons aspire to get themselves qualified for it. In Bombay the number of medical practitioners is always on the increase which could be seen from the following statement. The most important aspect of the profession in Bombay is the availability of specialised treatment in all branches of medical science in the hospitals owned by the Greater Bombay Municipal Corporation, the State Government, public trusts, the Bombay Port Trust and private practitioners. During the past about two decades a number of polyclinics have been established by enterprising doctors. They provide a number of facilities under one roof. A few co-operative hospitals such as the Sushrusha

Hospital at Dadar have been rendering excellent service to the people. The census statistics about this profession are given below :—

Year		Persons	Males	Females
1911	..	3,297	2,423	779
1921	..	3,224	2,409	815
1931	..	4,383	3,109	1,274
1951	..	13,873	9,407	4,466
1961	..	17,393	11,674	5,719
1971	..	27,346	15,952	11,394

Legal Profession : This is also a very prosperous profession in the city. Bombay gave birth to eminent jurists and advocates such as K. M. Munshi, M. C. Chhagla, Justice Bhagawati, Bhulabhai Desai, M. A. Jinnah, Saklatwala, Narayan Chandawarkar, Badruddin Tyabji, K. T. Telang and a galaxy of them.

Due to the existence of the High Court, the Small Causes Courts, Metropolitan Courts, and many Tribunals, eminent lawyers have got sufficient calling. There is also an increasing tendency among the students to study law. The advocates have got their Bar Associations wherein they discuss subjects of common interests. The sub-joined statement gives the number of lawyers of all kinds besides *Kazis*, law agents, *mukhtiars*, lawyers' clerks, petition writers as per the censuses since 1911. Censuses of 1961 and 1971 have included the number of judges and magistrates in the number of those in the legal profession.

Year		Persons	Males	Females
1911	..	1,044	1,042	2
1921	..	870	846	24
1931	..	1,994	1,974	20
1951	..	2,769	2,645	124
1961	..	3,466	3,341	125
1971	..	5,467	5,242	225

PUBLIC ADMINISTRATION

Bombay, the capital of Maharashtra, houses the regional offices and central offices of many of the Ministries of the Government of India. It is the headquarters of the two railway zones, *viz.* Central Railway and Western Railway which provide employment to a huge size of personnel. The Municipal Corporation has also considerable number of

employees under its jurisdiction. Consequently there is a huge army of personnel engaged in public administration. Although it may not be scientific to classify the employment in public services into miscellaneous occupations, it is deemed desirable to furnish some relevant information and census data about them in this section.

A detailed analysis of the structure of employment, trends therein, the organised and unorganised sectors of employment in the City and the condition of the working class has been given in Chapter 9 on Economic Development, in this Volume. Hence the information only about a few aspects is given below.

Under public administration the census authorities of 1911, 1921 and 1931 included such categories, as (*i*) service of the State, (*ii*) service of the native and foreign States, (*iii*) municipal and other local service, and (*iv*) village officials and servants other than watchmen. The 1951 Census under the group of Health, Education and Public Administration, included (*i*) village officers and servants including watchmen, (*ii*) employees of municipalities and local bodies of State and Union Government, but not including persons classifiable under any other division or sub-division. The 1961 and 1971 Censuses grouped the employees under administrative, executive and managerial workers, and administrative and executive officials, Government and local bodies, respectively. Moreover, the censuses have excluded persons belonging to the learned professions, like teachers, doctors, lawyers and engineers, some of whom although in the service of Government have been grouped separately under other appropriate headings. The employees enumerated under the heading 'traffic and communications' as also the policemen and the defence personnel have not been taken into account for the discussion of the occupation under consideration. Besides, the total number of public employees taken into account by the 1911 and 1921 Censuses are exclusive of their dependents.

The census statistics of public employees in Bombay are furnished below :—

Number of Public Employees in Bombay since 1911

Year		Persons	Males	Females
1911	..	9,593	8,980	613
1921	..	10,373	8,141	2,232
1931	..	35,141	33,426	1,715
1951	..	46,521	43,386	3,135
1961	..	67,816	65,581	2,235

The emoluments and service conditions of these employees have been revised from time to time so as to enable them, as far as possible, to cope up with the increased cost of living. Two pay commissions were appointed during the last thirty years. Of this the recommendations of the first commission known as the Badkas Commission were implemented in 1969. The second pay commission known as the Bhole Commission submitted its report in March 1977 and its recommendations were implemented by the Government of Maharashtra in 1979. Similarly the Government of India revised the emoluments of their employees from time to time.

The problem of accommodation of public employees is very acute in Greater Bombay. A large number of employees reside in far off places such as Kasara, Karjat, Pune, Panvel, Vasai, Virar and make daily trips to attend offices in Bombay. They are also required to pay exorbitant house rent and advance payment (*pagari*) running into a few thousands. Of course, Government does provide them accommodation. There are hundreds of tenements for State Government employees at Bandra, Cotton Green, Worli Chawls, Haji Ali, and at many scattered Government buildings. The Government of India and other constituents of public administration have also provided residential quarters for their employees. The problem of accommodation of the public employees in Greater Bombay district, however, is ever increasing.

DOMESTIC AND PERSONAL SERVICES

The occupations described so far do not exhaust all fields of human activity. Some occupations have become indispensable especially in an urban centre like Bombay. They are grouped under domestic servants, tailors, barbers, washermen, hoteliers, florists, etc. Whosoever knows a little bit of technique required for such services finds a job in Bombay, at least such persons will not starve. These occupations are described below.

Those who are engaged in such services have established their own unions. Even the domestic servants have also been unionised. Their union is known as Gharelu Kamgar Sangh. These unions are very alert and always fight for the interest of their members. They often strive to increase their earnings commensurate with the general increase in the standard of living. If their demands are not conceded by the employers they either go on strike or adopt such tactics as ' go slow ' or ' work to rule '.

Domestic Servants : Growth of urbanisation, break-up of the joint family system, rise in the standard of living and increase in money incomes have led to a rise in demand for domestic servants. In fact there is a dearth of persons volunteering for domestic servants in the city. The domestic and personal services included the services rendered by cooks,

house-keepers, maids, waiters, water carriers, door-keepers and watchmen. These servants generally belong to low income group and come from rural areas of up-Ghat and Konkan. They are paid monthly wages and in addition some of these workers are provided with free food, clothing, and sometimes shelter. The total number of these workers in the city as per the censuses since 1911 is given in the following statement :—

Year		Persons	Males	Females
1911	..	54,876	45,139	9,737
1921	..	39,070	30,306	8,764
1931	..	48,501	40,605	7,905
1951	..	86,875	65,784	21,091
1961	..	1,00,320	69,626	30,694
1971	..	1,28,562	95,225	33,337

Hair cutting : The traditional characteristics of barbers serving the clientele have undergone a tremendous change. However, one can see a few itinerant barbers in places like Kalbadevi, Foras Road, Thakurdwar, Girgaum, Grant Road, as also in suburban areas. They visit the customers' houses with leather bags, or small tin boxes. Beauty parlours have come into existence where women customers get their hair dressed into different styles. They are confined to the areas where the affluent society is housed.

The occupation is generally followed by the persons belonging to the Nhavi community as a hereditary one. Mainly barbers from up-Ghat and Konkan areas are found in Bombay. Many of them have come from Bihar, Uttar Pradesh, Kerala and Gujarat. Persons who have initiative and enterprise have established well furnished hair-cutting saloons. A number of persons from other castes have also started hair-cutting saloons in Bombay. In most of the shops persons are employed either on daily, weekly or monthly wages.

The sub-joined statement gives the number of persons engaged in this occupation during the census years since 1911. The census authorities have included in this occupation such categories as barbers, hair-dressers, beauticians, and wig-makers.

Year		Persons	Males	Females
1911	..	4,374	4,370	4
1921	..	4,616	4,590	26
1931	..	3,612	3,574	38
1951	..	9,940	9,836	104
1961	..	10,764	10,657	107
1971	..	11,772	11,542	230

Tailoring : The occupation has flourished to a very great extent during the last forty years and has been an important avenue of employment which can be seen from the following statement. More and more people are drawn towards it as it provides employment throughout the year :—

Year		Persons	Males	Females
1911	..	8,980	8,249	731
1921	..	10,874	10,079	795
1931	..	12,408	11,135	1,273
1951	..	24,788	23,549	1,239
1961	..	35,257	32,934	2,323
1971	..	51,408	47,909	3,499

The census authorities have included in the occupation of tailoring such persons as tailors, milliners, dress makers, embroiders, hat makers, sewers and cutters, upholsterers, darners, etc. The occupation is no more restricted to the persons belonging to the Shimpi community. In fact the occupation in Greater Bombay is followed mostly by persons belonging to other castes and communities. The Bombay tailors have always been the pioneers in the changing fashions in the wearing apparel. While the bulk of tailors accept tailoring jobs from the individual customers, there are quite a few who perform the job for the makers of ready-made garments. This sector of the occupation is expanding since the nineteen fifties particularly due to the rise in export of garments.

Laundering : About fifty years ago the occupation was mostly followed by Dhobis, traditional washermen. The Dhobis then used to visit the houses of the customers for collecting clothes and again for delivering them. Washing was then done at the Dhobi Talao on a large scale until the new ghat at Mahalaxmi was provided by the Municipal Corporation. Besides Mahalaxmi, clothes are now washed in bulk at Walkeshwar, Banganga and Parel.

The owners of the big laundries get the clothes washed by paid workers. The big establishments such as Band Box, Leach and Weborny and Beauty Arts make use of electricity and modern equipment and machinery and do dry cleaning or petrol washing of terywool, woollen and silk clothes. A few establishments also undertake dyeing work besides washing. The occupation in general provides employment throughout the year.

The following statement gives the number of persons employed in this occupation as per censuses since 1911 :—

Year		Persons	Males	Females
1911	..	6,705	5,597	1,108
1921	..	5,582	4,775	807
1931	..	6,255	5,660	595
1951	..	14,315	13,871	444
1961	..	15,967	15,301	666
1971	..	17,687	17,207	480

RELIGIOUS WORKERS

People in Bombay belong to different religions and almost all of them perform various religious rites. In spite of the decline of importance of tiruals and ceremonies, there is a brisk demand for preachers. The demand is at its peak during the month of *Shravan* and the marriage season. Many families have their own family preachers. They are paid in cash, while they receive the articles used in worship such as rice, cocoanut, betel-nut, etc. The earnings of a preacher have increased commensurately with the rise in cost of living.

In the case of Christians religious services have been institutionalised with an hierarchy of ordained religious workers who receive their remuneration from the institutions to which they are attached. Among the Muslims, the *Kazis* and the *Mullas* also receive remunerations both in kind and cash at the time of different festivities.

The census authorities have included in this category such persons as readers, pilgrim conductors, circumcisers, priests, ministers, monks, nuns, religious mendicants, servants in religious edifices, temples, burial or burning ground service, etc. The following statement gives the number of such religious workers since 1911 Census :—

Year		Persons	Males	Females
1911	..	850	800	50
1921	..	250	210	40
1931	..	2,971	2,869	102
1951	..	5,098	4,911	187
1961	..	3,502	3,436	66

SWEET-MEATS

The oldest known sweet-meat manufacturer in Bombay was Amichand Govindji, who established his business about 200 years ago at Bori Bunder, at a spot then known as the Three Gates. He was the first man to introduce the manufacture of *halva* in Bombay. It was then exported to many parts of India, China, Europe and Africa. The employees in the business were Marwadi Brahmans who were then paid Rs. 15 to Rs. 20 per month with boarding and lodging.

The following ingredients were generally used in the manufacture of sweet-meats : Flour (rice, wheat, gram), sugar, ghee, dry fruits, saffron, spices, cardamom, nutmeg, rosewater and other essences. The ghee used in the manufacture of sweet-meats then cost from Rs. 15 to Rs. 20 per maund.

Subsequently the business developed considerably and a large number of varieties of sweet-meats were prepared. The number of sweet-meat manufacturers also increased. The 1901 Census returned 350 sweet-meat makers and 1,400 sellers. They earned a good profit. The daily out-turn and sale in 1901 was 12 to 15 maunds. The price of sweet-meats varied from 3 to 4 annas (19 to 25 paise) per *sher* (about 900 grams).

The following statement gives the number of persons employed in this occupation since 1911 :—

Year		Persons	Males	Females
1911	..	2,106	1,948	158
1921	..	298	294	4
1931	..	580	573	7
1951	..	4,221	3,874	347
1961	..	4,849	4,532	317
1971	..	7,380	7,200	180

The 1951 Census has mentioned two categories *viz.*, (*i*) bakeries and other food industries and (*ii*) sweet-meats and confectionery preparations. However, the census has given the total number of persons employed under the first category only. Likewise, there are no separate figures of persons engaged in bakeries and sweet-meat making in 1961 and 1971 as the censuses of those two years have grouped together bakers, confectioners, candy and sweet-meat makers. Although every locality has some sweet-meat shops, a few firms have earned a city-wide reputation. They have a big turnover of trade. Some of them export the products to the Middle East. Besides Maharashtrians, the migrants from Uttar Pradesh, Sindh, Punjab and Rajasthan are found in this business.

BAKERIES[1]

The consumption of bakery products which was confined to the Europeans and Parsis in the previous century is not now restricted to a few people of particular classes. To a considerably large number of people bread is now a convenient item of food. The first bakery in the city was established about 170 years ago by a Goanese in the Old Hanuman Cross Lane wherein all the Goanese Christians then used to reside. Besides conducting his bakery, the owner kept an eating house for Europeans, which was well patronised. He started his business with a capital of Rs. 500 and the profit of his trade enabled him to live luxuriously. He then supplied bread to the inmates of the Government House and the Commissariat Department, and had about 300 customers. His staff consisted of 25 Goanese servants and a master baker, besides several Hindu women who were employed in grinding wheat. These Goanese servants besides being paid their wages were allowed to sell bread and thereby used to realise about Rs. 15 a month. The pay of the master baker was about Rs. 35 and that of servants about Rs. 12 per month with boarding and lodging. The price of superfine bread prepared from wheat known as *pishi* was about 12 paise a loaf.

In the Muhammadan quarters ovens called *tannur* were used for baking *nan* bread. The owners of these bakeries, *nanvais ki dukan*, were mostly Mughals, but a few were owned by Muhammadans also. These *tannurs* are still found in the Musalman *mohollas*.

The consumption of processed foods, canned fish, meat, fruit and vegetable products, food products with protein, cakes, biscuits and breads has become a habit of people in Bombay. Especially, the consumption of biscuits and breads is very common among the well-to-do.

The following statement shows the number of persons employed in this occupation since 1911 :—

Year		Persons	Males	Females
1911	..	1,212	1,131	81
1921	..	732	698	34
1931	..	N.A.	N.A.	N.A.
1951	..	4,221	3,874	347
1961	..	4,849	4,532	317
1971	..	7,380	7,200	180

At present the occupation of bakeries is organised on a scientific basis and considerably big undertakings like Modern Bakeries (India),

[1] The history of Bakeries is furnished in Chapter 5 of this Volume.

Britannia Biscuit Co. and Aryan Bakery have established their factories in the city. Of these, the Modern Bakeries is a Government of India undertaking. There are also some big biscuit factories such as Parle Products Private Ltd., and Shangrila Food Products Ltd. These establishments produce a variety of products. The bakers in the city have organised the Bakers' Association, while the employees are also unionised in their own interest.

HAWKERS

The range of economic activity in Bombay is so wide that any effort to classify it into clear-cut divisions and to enumerate them and give an account of each one is just impossible. Here numerous persons earn by selling cowdung or mud, by manufacturing sophisticated machinery as also by practising modern medicine. A number of women earn their livelihood by selling vegetables from door to door. Some persons go round for selling fruit, fanciful articles like glass bangles and toys. Some collect rags, pieces of papers, worn out foot-wears and sell them. In posh areas like Fort persons earn even by giving directions to the driver to park his car in a place crowded with other cars, by cleaning cars as also by catching an empty cab for a passenger during busy hours. A number of boys earn by selling newspapers. There are persons who earn by delivering tiffin boxes to the office-going population. The head-load workers and the persons who push hand-carts are found in great number in the busy business centres of the city. The hand-cartmen are seldom owners of the carts. They often hire them either from the shopkeepers or *mukadams*. Their earnings and employment conditions are somewhat better than those of the head-load workers. Quite a good number of persons also earn by doing boot-polish, by selling *Wada-pav* or *bhajias*, parched groundnut seeds and gram, lottery tickets, etc. There are thousands, of persons working in the docks known as Mathadi Kamgar.

This shows that the persons who have got imagination, and who do not feel shy of doing any work have got immense scope to earn in Bombay. The result is that over a period of time a number of such miscellaneous occupations have come in vogue.

Amongst them hawkers occupy an important place in the occupational structure of the city and its suburbs. They trade in a variety of articles right from bananas to costly imported articles. The general explosion of population after Independence, and the usual influx of people from almost all the States to Bombay have swelled the population of the city. This accompanied by the paucity of business premises and the exorbitant price for obtaining them has encouraged the calling of hawking in the city.

It can generally be observed that persons from southern States and Sindhis form the majority of the hawkers. They are found in the better

selling areas and busy streets. The following statement gives the number of authorised hawkers in the city since 1911 as per census statistics. It may, however, be noted that the census authorities have included such persons as itinerant traders, pedlars, street vendors of drink and foodstuffs, canvassers and news vendors into hawkers :—

Year		Persons	Males	Females
1911	..	1,808	1,695	113
1921	..	3,258	2,812	446
1951	..	21,943	20,127	1,816
1961	..	31,837	27,963	3,874
1971	..	37,525	35,035	2,490

The control over hawkers in Bombay was first contemplated in 1910 when the Government of Bombay pointed out that hawkers were causing obstruction on foot-path. However, actual licensing of hawkers was not thought of till 1921. The hawkers are now by rule required to get licences for doing business. The municipal administration of the city has divided the authorised hawkers into various categories such as itinerant, roving hand carts, stationary hand carts, and squatters. In spite of various measures taken by the municipality a large number of unauthorised hawkers remain.

Both authorised and unauthorised hawkers are now posing a problem of law and order which at times assumes a political tinge also. The problem has got two sides. Firstly, people might think that the hawkers are providing service by making available goods at a lower price. Secondly, the traffic problem in Bombay has assumed such a serious proportion that the occupation of road space or foot-path by hawkers is a more serious menace. And hence the necessity of removing the encroachment on the streets and foot-paths and of reducing the vast number of unauthorised hawkers.

GOLDSMITHY

The frantic craze for ornaments is found in almost all the sections of the Indian society. The business in gold and gold ornaments is concentrated in Javeri market and in Dadar, Girgaum and Opera House areas. A number of shops and big firms have come up. Quite a few of them are also found in suburban areas.

Making of gold ornaments is a hereditary occupation of the *Sonars* among Hindus. They inherit the skill and craftsmanship from their forefathers. A few of them are employed in big shops, while others set up their own small shops.

According to the first edition of this *Gazetteer* (1909) there were about 4,400 goldsmiths who found constant and lucrative occupation in Bombay. In normal course the number should have increased considerably after a period of about seventy years. However, the Gold Control Rules of 1963 not only affected the business adversely but also threw a number of goldsmiths out of employment. The following statement gives the number of goldsmiths in Bombay since 1931 Census:—

Year		Persons	Males	Females
1931	..	2,316	2,288	28
1951	..	6,697	6,624	73
1961	..	7,860	7,816	44
1971	..	6,175	6,090	85

PAN-BIDI SHOPS

Pan-bidi shops number about six to eight thousand in the city. These shops neither contribute much to the economy nor do they provide employment to a large number. However, they cater to the need of the citizens. Most of the shops are run by the owners themselves without any paid employees. The earnings of the owners are quite handsome. The total collection of an average shop per day may be between Rs. 50 and Rs. 300. The Maghai betel-leaves are imported from Bihar. The prices of betel-leaves which are available at the *panpatti* shops vary from Rs. 15 to Rs. 25 per hundred and those of betel-nuts from Rs. 15 to Rs. 30 per kilo. Generally Banarasi and Kanpuri catechu (*kath*) which costs about Rs. 100 and Rs. 70 per kilo, respectively, is used in these shops. Tobacco of good quality is imported from Hyderabad, Kanpur and Lucknow. The price of a *masala pan* depends upon the contents used in it, and it may be anything between fifty paise and Rs. 100. The costliest *panpatti* consists of *warkh*, silver foil or gold foil, *kasturi* musk, *keshar*-saffron; and various spices as also invigorant and nourishing articles.

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CHAPTER 9—ECONOMIC TRENDS *

SECTION I—ECONOMIC DEVELOPMENT

THE PROLOGUE

BOMBAY HAS BECOME A VERY LARGE URBAN COMPLEX strung out along a seaboard, in a manner such that jurisdictional integration, though not impossible, has become quite difficult. Not only it is heavily settled throughout its length and breadth, but the nature of the terrain precludes smooth communication, excepting along the axis. Economists in Western countries would describe such a urban complex by using the word 'megalopolis' which means a wide-spreading and thickly-populated urban area. It would however be more in the fitness of things to use the more common term 'Metropolitan Area' for Greater Bombay.

In introspection it would appear that this most advanced and most rich city of India is faced with severe troubles, and it is really difficult to get to grips with the socio-economic or even with the sheer physical problems of this metropolitan area. Roads and streets laid down in the past few decades are just insufficient to meet the needs of modern traffic, and a day is not far off when even pedestrian traffic would become extremely difficult. Housing in Bombay is fantastically inadequate to accommodate the flow of immigrants and the growth of the indigenous[1] population. The multiplication of slums and shanties, as also the increase in houseless population is therefore the natural outcome. The resulting congestion has breeded physical and psychological strains and disturbances, as also serious health hazards to the lakhs of citizens. Besides the already over-grown and growing population of the city proper, there is an additional problem arising from the army of commuters, who daily surge into the city for work, but live outside its jurisdiction. Thousands and lakhs of persons from surrounding towns such as Thane, Mumbra, Dombivli, Kalyan, Ulhasnagar, Ambarnath, Badlapur, Neral, Karjat, Titawala, Asangaon, Kasara, Vasai, Bhayander, Sopara, Virar and many others throng Bombay city for attending their work. These factors put a heavy strain on the transport system in the city. Inevitably, the civic services in the city are deteriorating. Law and order, though maintained by an efficient administration and adhered by peaceful citizens, cannot be taken for granted. To put it more precisely, this

* This chapter is contributed by Shri K. K. Chaudhari, M.A., Executive Editor and Secretary, Gazetteers Department.

[1] By indigenous population is meant local population for the purpose of our analysis.

'core' city of India is slowly submerging in a mass of unplanned and inappropriate sprawl.

Though the fundamental problems of Bombay are quite similar to those of other Indian big cities, this metropolis is unique in its combination of economic, social, locational and climatic characteristics. The basis of the troubles of the city, one way or another, is the population explosion. During the seventy years from 1901 to 1971, the population of the city increased from 9,27,994 to 59,70,575 i.e., by about 543.39 per cent, or on an average at the rate of about 7.76 per cent per annum. While the population increased by 200 per cent, or on an average at the rate of 4 per cent per annum from 1901 to 1951, even the decadal growth was as high as 43.80 per cent from 1961 to 1971. Population of the city increased at a galloping speed to 8.24 millions in 1981.

The immigrants in Bombay are broadly of two kinds. Firstly, there are persons who are deliberately seeking employment and better wages than they could get in the countryside or in small towns. Such immigrants fully realise that it may be sometime before they get a satisfactory full-time job and in the meantime they will take any odd opportunities that offer. In such cases migration is a calculated risk which brings some results. "Thus in Bombay unemployment is found to be lower among the immigrants than among the indigenous population (if they can be so designated, when most of the families will probably have come from elsewhere). The net reproduction rate of the immigrants is also lower; but this may be partly the result of their transitional situation. In Calcutta by contrast, there are few immigrants and population growth is almost wholly due to the indigenous families. One is tempted to conclude that in Calcutta the calculated risks are too high to be attractive. The second and more traditional type of Indian City immigrants are those who drift in from the country without a definite aim, or even much hope of employment. They come because they hope that urban conditions will somewhat be better; they can hardly be worse for the landless peasant than village life. These hopes can very easily be frustrated."[1]

"The special significance of these population movements lies in the way in which they give rise to *congestion* of people, of houses, of street circulation. And to congestion can be traced, directly or indirectly, most of the troubles of the cities: pollution of various sorts, inadequate housing, serious health hazards, unruly populations and heavy unemployment, especially of young persons. These troubles are present in different degrees in practically all countries. It is this circumstance which gives a unity to the quest for the diagnosis and cure of the large cities. It is indeed a world problem."[2]

[1] Ursula K. Hicks, *The Large City —A World Problem,* pp. 15-16.
[2] Ibid., p. 16.

" Bombay received about 1,22,000 immigrants a year. Even with a fairly good rate of industrialisation this is clearly too high a number to be digested without adding to unemployment and shanty settlements and all that these imply is congestion, pollution, health hazards, crime and unrest."[1]

In addition to the large number of regular commuters, Bombay has a problem of 'contact population', those persons who visit the city from time to time for particular purposes, such as professional services, cultural opportunities or entertainment. This also contributes to congestion and strain on civic services.

The problems regarding immigrant population are more complicated by disparities between the sexes, as males exceed females to a great extent. " In Bombay city of the intercensus total immigration the proportion of male immigrants was almost double that of females. This sex disparity brings with it a number of difficult social problems. It may have a variety of causes. In India many men leave their wives and families behind in their villages, but keep in close touch with them."[2]

Another aspect of immigration in Bombay is the type and intention of the immigrants. " For instance, Kerala is increasingly losing population to Bombay rather than to the neighbouring States of Mysore and Tamil Nadu. On the other hand, a certain (and increasing) proportion of the urban immigrants apparently do not drift vaguely into the cities, but attempt some crude but rational calculations of the profitability of getting a good job in two or three years. In the meantime they are prepared to wait, picking up what odd jobs they can and perhaps having some small savings to help eke out over the short period. They reckon that, discounting the future income stream down to the present, benefits are likely to exceed costs. This would conform to Latin American patterns, where, however, incomes are in general larger and living standards higher. It is interesting that in Bombay in recent years the immigrants have experienced a lower unemployment rate ..... than the initial inhabitants."[3]

Immigration to Bombay is largely on economic grounds. There are better avenues of employment on account of growth of industrialisation, development of trade and commerce and of the tertiary sector. A patent cause of immigration is also the availability of better educational facilities than in the countryside. Typically immigration is the major cause of population growth. Thus of the addition to the population of Bombay between 1951 and 1961 to the extent of 12,07,000 as many as 5,22,000 were immigrants.

The growth of Bombay as an entrepot centre of trade and commerce, and as an industrial city has created enormous problems of transport

[1] Ursula K. Hicks, op. cit.
[2] Ibid.
[3] Ibid.

and traffic. In fact transport bottlenecks and pressure on street capacity pose a major problem for the authorities, the solution for which is not in easy accession. The problem is partly due to the extreme heterogeneous nature of the transport and the large number of erratic and slow moving vehicles. In addition to cars, buses and delivery vans, many bicycles, bullock carts, tongas and hand-carts cling to the centre of main arteries. Traffic may have to deviate to allow a cow to take its ease in the middle of the street. Millions of pedestrians throng the streets largely because they have particularly nowhere to go. The amount of pollution produced per motor vehicle in Bombay tends to be higher because many of the cars and trucks are extremely old or of obsolete design as compared to those in western countries.

The problems of transport as well as infrastructure are embarrassingly dynamic in the sense that the conditions accompanying them are continually changing. For instance, the volume and flow of traffic, development of public utilities, such as water, severage and power which are related to the streets, and the expansion and decay in certain quarters of the city, are to be dealt with every now and then. Road widening or reorganisation of streets or even of traffic islands pose a continuous challenge, as the street pattern of the city is determined by its topography and physical structure. The traffic problems of Bombay are broadly of two kinds : (*i*) those concerned with the provisions of the streets themselves and (*ii*) those concerned with the street users. All these problems are formidable and very difficult for solution. With every year that passes the congestion, delay, pollution and accident rate get worse.

The street system of the city, which by itself is not bad, was originally intended to meet the demands and requirements of an earlier age. A majority of the roads were laid out a century ago or even earlier. The city however grew enormously both in size and complexity during the subsequent period. The peculiar ecological structure and the physical aspect of the city have also added to the traffic problem. The main office and commercial centre, or the core of city, which employs the vast majority of workers in tertiary and secondary sectors, is located in the extreme south. But the most important residential area is situated in the north. This distance between the residence and work-place has resulted in the daily movement of population from north to south in the mornings and from south to north in the evenings. The semi-directional flow of traffic which is on account of the existing ecological structure is one of the basic causes of the transport problem of Bombay.

A very high proportion of commuters in Bombay travel by suburban railway. In fact suburban trains are the principal means of transport which are followed by bus services provided by the Bombay Electricity Supply and Transport Undertaking. The proportion of cars to population is one

car to 91 persons in Bombay, while the proportion for India as a whole is one car for 1130 persons.*

The sense of overcrowding in Bombay is enhanced by its geographical situation, which was once so suitable for a fortified anchorage but now severely restricting expansion in all but one direction—further on to the mainland and further away from the focal point of the city. Lakhs of commuters travel to work each day along the choked arteries of the linear city. The development of the focal point of the city, the Fort area, for offices, hotels, and luxury apartments continues, with sky-scrapers and land reclamation. The reclamation of land on the southern and western edges of the city is further overloading the transport network and civic services. The encroachment and further encroachment on sea for finding land for human habitation and office accommodation is putting an increasing strain on the transport system, water supply, electricity supply and many incidental services.

It has therefore become inevitable to disperse industries and housing to the mainland beyond the limits of Greater Bombay. A lot of exercise in dispersal of economic activity and in regional planning is being done since the end of the sixties, at government and municipal levels in the city. Accordingly a Metropolitan Regional Development Plan for the region has been formulated. It is hoped that the construction of a new port and the establishment of the twin city across the bay in accordance with the plan referred to above will set as a counterfocus to ease the congestion in the mother city. A detailed consideration of the Bombay Metropolitan Regional Development Plan will be done later on in this chapter.

Bombay is a premier port on the Western sea board and is the commercial capital of India. It is the most advanced industrial centre not only of Maharashtra but also of India. It has been a leading centre of the cotton-mill industry for a century and quarter, and has provided a congenial home for engineering and chemical industries during the last few decades. A number of modern and technologically advanced industries have been established in Bombay after the fifties. Besides manufacturing, it retains the functions which brought it in existence as an administrative communications and trading centre serving Western India. The registered offices of a number of private sector and public sector corporations and industries are housed in the city, and it has almost become the nerve centre of the Indian economy. It has been the ' Gateway of India ' for Europe, America and Africa.

The strategic location of this metropolis, the agglomeration economies available herein and other locational advantages offered by it have had an effect on its economic growth.

* Information from World Bank Report.

The economies of agglomeration in Bombay have contributed to the concentration of industries and commerce in the city. Entrepreneurs often find it cheaper to locate new investments in this developed centre or on its outskirts than in new centres. Bombay provides the essential infrastructure for industries and commerce. It is a natural harbour, and as said above, is the 'Gateway of India' to Europe, America and Africa. The magnificent and capacious harbour has not been sensibly injured for the last about 275 years, either by the forces of nature or by the hand of man, while it has been explored and defined with greatest accuracy. The bunders and places for the loading and storage of merchandise are extending, and there is little danger of the anchorage being impaired. Naturally hundreds of thousands of tons of merchandise is imported and exported from Bombay. It is advantageously situated as regards railway communication. The Central Railway and the Western Railway both emanating from here have connected Bombay with the rest of the country. These two trunk routes radiating in various directions across the continent of India have also played an important role in the development of Bombay.

Bombay owes its economic growth to a class of enterprising entrepreneurs which included, besides Maharashtrians, Bhatias, Jains, Marwadis, Banias, Parsis, Europeans, Bohoras and Khojas. Though many of them were migrants from Gujarat, Rajasthan and Karnatak, they raised the initial capital by thrift, money-lending and selling their belongings in their native places. They gradually grew in their financial strength, and invested in industries and trade. As things appear at present a number of business houses have either monopolistic or oligopolistic control over certain industries. Such business houses and groups have a nation-wide reputation for controlling organised industries not only in Bombay but also in various parts of the country. Besides, a new entrepreneurial class comprising Maharashtrians and some others has come into existence. This class has also contributed to the growth of Industries and Commerce in Bombay.

In addition to the indigenous entrepreneurs, a number of foreign concerns many of which conform to the description as 'multi-nationals' have also contributed to the economic growth of Bombay. Most of the foreign concerns owned the industrial concerns which they established on their own, in the past. They hardly allowed any indigenous interests in their business and were quite exclusive. In keeping with the industrial policy of the Government of India the exclusive interest of the foreign companies has been curtailed either by compelling them to allow Indian participation in share capital and management or by their nationalisation. Hence, we now find a number of companies which are run with foreign collaboration. In many cases the collaboration is financial and technological but in some it is mainly technological. Such companies have

contributed immensely to the growth of the Bombay industries, in particular and of the economy in general.

Besides the harbour and a centre of railways, Bombay is an international airport affording air services to almost all parts of the world. It is also connected by air to all the major cities in the country and a number of national and State highways emanating from the city connect it with almost the entire country. There is also a modern telecommunication service from Bombay to all parts of the country, and an overseas communication service to major cities in the world. All these infrastructure facilities have encouraged localization of industries at Bombay.

The other factors contributing to the concentration of industries and commerce include the growth of banking institutions, a developed money market, the best of educational and medical facilities, a peaceful labour force and an efficient administration at the Government and municipal levels. Besides banks, a number of investment trusts and agencies mobilise funds for lending to small-scale industries. Bombay is also a home of technocrats, qualified technicians and skilled labour, and there is no derth of such personnel to industries. Besides being a centre of industries and commerce, it is a centre of educational and cultural activities which are unique and unparalleled in the whole of India. These factors are quite favourable to the expansion of industries in Bombay.

GROWTH OF BOMBAY

Just about the first quarter of the nineteenth century, the Island of Bombay was emerging from the position of a mere trade settlement into that of the Gateway and Capital of Western India. The trade of the port showed a steady rise. The construction of the Sion Causeway which connected the Island with Salsette gave a further impetus to trade. Naturally, the trading communities migrated to the Island in larger numbers during these years. The Dassa Oswal Jains, particularly from Cutch came in increasing number in pursuit of prospective trade, and generally laid the foundations of one of the most prosperous of our modern commercial classes. The Parsis also equally contributed to the growth of Bombay. Persons like Jamshetji Wadia used to build first class frigates for the Indian Marine and stout vessels for such friendly powers as the Imam of Muscat.[1]

The abolition, in 1813, of the East India Company's monopoly for trade in India gave a decided encouragement to the commerce of the Island. To quote only one item, the export trade in raw cotton increased from 30 million lbs. in 1809 to 90 million lbs. in 1816.

[1] S. M. Edwardes (ed.), *Gazetteer of Bombay City and Island*, Vol. III, pp. 272-73, 1909.

The construction of a good carriage road up the Bhor Ghat during the regimes of Mountstuart Elphinstone and Sir John Malcolm, opened the Bombay Island to the Deccan. This Ghat, opened on 10th November 1830, facilitated the trade of Bombay in a large measure.

Another landmark in the growth of Bombay was the construction of the Colaba Causeway in 1838.[1] The causeway initiated a growth of the areas around it as also that of the Fort area as it joined the Colaba and the Old Woman's Island to the Island of Bombay.

The period between 1860 and 1865 was one of accelerated growth in every branch of economic activity.

The commencement of the first railway line in India from Bombay to Thane on April 16, 1853 and the opening of the Bombay-Baroda and Central India Railway from Bombay in 1864 were the most important landmarks in the development of Bombay. The opening of the Bhor Ghat railway line on 22nd April 1863 facilitated the growth of trade and industry in Bombay. The value of railway in fostering the growth of Bombay has well neigh been incalculable.

While the regular service of coasting steamers from Bombay to other ports of India increased the trade of this city, the opening of the Suez Canal in 1869 effected a complete revolution in the carrying trade of Bombay, which had upto that date been restricted by a lengthy voyage round the Cape. Bombay thus became the imperial port of India conveying British mails and goods. It is interesting to note that, in order to improve communication between Bombay and the rest of the world, a direct submarine cable was laid down from Suez to Bombay in 1870, in connection with the cable from Falmouth to Gibraltar.[2]

Another fundamental cause of the growth of Bombay was the enormous increase of the cotton-trade and the subsequent Share Mania of the years 1861-65. The outbreak of the Civil War in America (1861-65) which at once cut off the supply of American staples, is calculated by Mr. Maclean to have given to Bombay roughly 81 millions sterling in five years over and above what she had in former years as a fair price for her cotton.[3] " The produce of all the great cotton fields in India, Nagpur, Berar, Gujarat and the Southern Maratha Country found its way to Bombay in order to be exported to England with all possible despatch, while the high prices ruled and the blockade of the South American ports lasted. So sudden was the demand, so high the range of price, so vast the profits, that an economic disturbance set in. Money seemed to lose its purchasing power, the prices of almost all articles rose simultaneously the wages of labour were enhanced in proportion."[4]

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[1] S. M. Edwardes (ed.), *Gazetteer of Bombay City and Island*, Vol. II, p. 143.

[2] Ibid., p. 163.

[3] Maclean's *Guide to Bombay*.

[4] Sir Richard Temple, *Men and Events of My Time in India*, 1882.

Accumulation of money in the hands of certain classes led to speculation. Adventurers from distant places were attracted to Bombay and all sorts of ingenious schemes were devised for putting the newly acquired wealth to use. The Stock Exchange had a brisk business. In 1863, Bombay shipping companies were started which snatched away business from English ship-owners. Speculation knew no bounds. The Back Bay Reclamation project attracted money in volumes. The value of land had been trebled and quadrupled in Bombay, the population was daily increasing in numbers, and the available space within the island was very little. The Back Bay Company's transactions had proved too great a temptation for the merchants of Bombay.

The cessation of the American War in 1865 however brought conditions of a heavy slump in the commerce of Bombay. The fall in cotton was followed by a depreciation in land prices which brought down shares from 500 or 600 per cent premium to a discount. By the end of 1866 every one of the financial associations had failed and gone into liquidation; all banks, with the exception of those having their headquarters out of Bombay, had also gone out of existence. The Bank of Bombay which had also collapsed in 1866, was however restructured afterwards in 1868.

The Share Mania by good fortune did no permanent injury to the trade of Bombay; while it, at the same time, was responsible for improvements which might reasonably have taken many years to introduce. Handsome works were carried out on either side of the Apollo Bandar, extending south-westwards almost to Colaba Church and stretching from the Custom House to Sewri along Mody Bay and the Elphinstone, Mazagaon, Tank Bandar and Frere reclamations—a distance of at least five miles. On the other side of the island was the great Back Bay reclamation from Colaba to the foot of Malabar Hill, whereon was constructed a good road. The area thus reclaimed amounted to more than 4,000,000 square yards, and resulted by 1872 in an increase of the area of the whole island from 18 to 22 square miles. Simultaneously there was a lot of progress in construction and widening of roads, the chief among them being the widening and rebuilding of the Colaba Causeway in 1861-63, the commencement of the Esplanade, Rampart Row and Hornby Roads, the widening of Cruickshank Road (now known as Mahapalika Road) and Carnac Road (Tilak Road) in 1865 and 1866, and the completion of the Carnac, Masjid and Elphinstone overbridges in 1867.[1]

More striking than new reclamations and communications were the great buildings and architectural adornments of the city which were projected and commenced during Sir Bartle Frere's tenure of office. The embellishment of Bombay was carried out by both Government and private citizens, both equally actuated by the spirit of the age, which

[1] S. M. Edwardes, *Rise of Bombay—A Retrospect*, 1902.

demanded that some part of the newly acquired wealth should be allocated to the permanent advantage of the city. The birth of Bombay as a populous and beautiful city is ascribable to the joint labours of Government, the Municipality, private firms and public-spirited citizens.

The first mill in Bombay was projected in 1851 by Mr. C. Nanabhai Davar and commenced work in 1854 as a joint-stock company under the name of the Bombay Spinning and Weaving Company. In 1870, there were 10 mills on the island, in 1875 when the Millowners' Association was first established there were 27; in 1880, 32; and in 1890, 70 mills. The opening of each mill augmented the number of industrial workers, so that the census of 1881 recorded 8.4 per cent of the total labouring population as mill-workers.

The formation of the Bombay Port Trust in 1873 was an important landmark in the economic history of Bombay. The Prince's Dock, the first stone of which was laid by the Prince of Wales in 1875, was opened on the 1st January 1880. The Victoria Dock was completed in 1888. Tramway communication was instituted between 1872 and 1877, and by 1880 it had reached from Fort to Girgaum, Byculla and Grant Road.

About the commercial prosperity of Bombay, Lord Reay said as follows in 1887: " The prosperity of Bombay is one of the most remarkable events of the Victorian reign..... It is one of the most beautiful towns of the Empire, if not of the world. Its sanitary condition is also vastly improved. Fifty years ago the exports amounted to nearly 60 millions of rupees and the imports to little more than 47. In 1885-86 the exports amounted to more than 419 millions and the imports to nearly 440 millions. In 1885-86 the value of cotton exported amounted to more than 84 millions of rupees, of pulse and grain to more than 43 millions. The municipal income has risen from 18 to 42 lakhs. The Prince's Dock would do credit to any port in the world."

The growth of the mill-industry during 1880-1895 led to development of the northern areas of the island. There was a considerable increase in industrial employment. The disastrous plague epidemic of 1897-99 brought tremendous decline in economic activity as thousands of persons fled away from Bombay. In 1899, the cotton mill industry was at its worst, and all the mills were closed for three days in a week while some of them were wholly idle. The 20th century however witnessed a reversion of this order of things, and cotton trade improved greatly. The Swadeshi movement launched by nationalist leaders had a great impact on the textile industry. This movement led to increase in demand for cloth manufactured by Indian mills as against imported cloth.

The establishment of the City Improvement Trust during the regime of Lord Sandhurst in 1898 did a great deal towards the improvement and development of Bombay city. It was modelled after the pattern of the Glasgow City Improvement Trust.

The trust was charged with development functions such as, (*i*) laying of new roads, (*ii*) improving crowded localities, (*iii*) reclaiming further lands, (*iv*) construction of dwellings for the poor and (*v*) provision of accommodation for the police. The Trust undertook several schemes for improvement of congested areas. A number of road works, including widening of old streets and construction of thorough-fares were taken up. A few among the important roads constructed by the Trust were: Hughes Road, Sandhurst Road, Princess Street, Frere Road and Lamington Road. These thorough-fares opened up many new localities in the city for residential and industrial accommodation. The work of the Trust as regards building construction was quite commendable. It also did a lot for clearance of congested areas and land reclamation. The trade depression and the slump in industries that followed after 1922 restricted the activities of the Trust. The demand for building sites was reduced, and hence, proposals for further reclamation of Back Bay and Walkeshwar were withheld.

The financial strain led to the dissolution of the Improvement Trust on 31st March 1926, and the bulk of the work was entrusted to the Bombay Municipal Corporation. It was finally amalgamated with the Municipal Corporation by the Act of 1933.

The Mahim Development scheme was effectively implemented. Under this scheme Gokhale Road, Lady Jamshedji Road, Dadar-Matunga Station Road and many other roads in the area were developed. Naturally, the entire area between Dadar and Mahim came under the development fold. The Shivaji Park was laid out in 1929. The Municipal Corporation was faced with financial difficulties and strains during the Second World War. The Government therefore empowered the Corporation to postpone the execution of development work till the end of the War.

To plan the Post-War Development, Government appointed a Committee presided over by the Adviser to the Governor. The Committee recommended, among many other measures, the expansion of the territorial limits of Bombay for dispersal of the development of Bombay, and preparation of a Master Plan. The outline of Master Plan which was prepared in 1947 (approved in 1948) was really not a complete Master Plan but a preliminary guide for further development of the city, suburbs and satellite towns.

The growth of Bombay gathered further momentum after 1950. There was unprecedented development of industries and commerce. Since there was no space available to new industries they hurried to establish themselves in the suburbs. The accelerated rate of growth created unforeseen problems due to heavy concentration of industries. The territorial limits of the city were expanded in February 1957 * upto Dahisar

* The present area of Greater Bombay after the expansion in February 1957 is 603 sq. km. as per the Surveyor General of India.

on the Western Railway and upto Mulund on the Central Railway and the whole city agglomeration came to be known as Greater Bombay.

There was an increasing demand from the enlightened citizens that the development of this most important city of India must be properly planned in order to save it from haphazard growth. The Bombay Municipal Corporation therefore prepared a Development Plan for Greater Bombay in 1964. It was followed by the Gadgil Committee's Plan and the Regional Plan for the Bombay Metropolitan Region prepared by the Bombay Metropolitan Regional Planning Board. These plans are dealt with separately in this chapter.

THE ECONOMY OF BOMBAY

The economy of Bombay can be properly understood by making a rough and broad distinction between its organized and unorganised sectors. The organized sector is conceived to include large manufacturing firms in the private sector and the employment in Union Government, State Government, Municipal Corporation, Banks, Railways, Bombay Port Trust, Life Insurance Corporation of India and other quasi-Government activities which together form the public sector. The unorganized sector is conceived to include a very large number of producers who employ monthly paid or casual labour; it also includes a substantial amount of household employment and self-employment and cultivators as also agricultural labourers. A salient feature of the organized sector is its relatively organized work-force which is covered by labour legislation and trade union protection.

The criterion for the distinction is made further precise by accepting the employment criterion set by the Directorate of Employment and Training, Bombay. Since the Directorate of Employment collects data for the organized sector, defined as all public sector establishments and all privately owned establishments with more than 25 employees, this is certainly a dividing line and it has been used below for our purpose.

The Statement No. 1 shows the composition and growth of the organised sector employment from 1951 to 1971. It is evident that the organized sector provided employment to about half the work-force in Bombay in 1961 and that this proportion showed no sign of rising over the period of 20 years. The overwhelming majority of other workers were in the unorganized sector, employers being small in number. As regards the composition of the work-force in the organized sector, it is seen that a substantial but diminishing majority was found in the private sector. Of these, more than 80 per cent were employed in factories while the rest were employed mainly in offices. The size of the organized sector was of the same order or magnitude as that of the unionized labour force

in 1961. Registered trade unions claimed a membership of 7,03,542 in 1961 in Bombay.[1]

The Statement No. 2 gives the distribution of the work-force residing in Bombay into employers, organized workers and unorganized workers. It may be noted that the statistics are rough estimates based on data from the 1961 Census and the Directorate of Employment and Training.

Manufacturing accounted for about half the organized employees, of which a further three-fifths were engaged in the textile industry. The subdivisions in manufacturing other than textiles were distributed almost equally among the organized and unorganized sectors. As it is most natural, organized workers in transport and communication services were principally in the public sector and covered the employees in the B.E.S.T., railways, docks, shipping, postal services and telecommunications. The organized workers were mainly in government administration, education and medical services which were largely in the public sector. In private sector they were engaged in various professional and business enterprises and in larger hotels and catering concerns. Domestic servants who were not at all organized constituted about half the unorganized sector.

UNORGANIZED SECTOR OF EMPLOYMENT IN BOMBAY, 1961

About half the employment in the unorganized sector was that of self-employed persons and those engaged in household industry. Of the 4,45,000 wage employees, about 1,00,000 were employed as household servants and cooks, and the rest of them, *viz.*, 3,45,000 were employed in very small establishments, employing on an average of about four workers each. This is evident from the fact that there were 96,000 'employers' according to the Census who are defined as persons at work who regularly hired other workers to assist in that work; on the other hand there were only 2,325 private establishments in the organized sector, according to the Directorate of Employment, and it can be assumed that these establishments accounted for approximately one employer each. Thus there were about 93,500 employers in the unorganized sector employing 3,45,000 workers, about four employees per employer.

The Statement No. 2 shows that the ratio of employees to employers in retail trade was less than two. Manufacturing units in the unorganized sector, small as they were, had an average of four employees to one employer. There were 27,500 employers in manufacturing as a whole. Of them, 1,400 were organized sector factory owners and about

[1] L. K. Deshpande, *Evolution of the Wage Structure in Bombay City*, 1950-60, (Unpublished Doctoral Thesis, Bombay University, 1964),

2,500 small registered factories employing 10 to 25 workers each and employing a total of about 50,000 workers. This left about 23,500 employers employing about 72,000 employees, *i.e.* about three employees per employer.

STATEMENT No.

EMPLOYMENT IN ORGANIZED SECTOR IN GREATER BOMBAY, 1951–71[1]

(Figures in thousands)

	1951	1961	1966	1971
1. *Private Sector*—				
(*a*) Factories ..	358	458	523	531
(*b*) Other	N.A.[a]	94	116	97[d]
Total ..	445[b]	552	639	628
2. *Public Sector*—				
(*a*) Union Government ..	55	67	88	90
(*b*) State Government ..	28	41	57	61
(*c*) Municipal Government	52	70	89	94
(*d*) Banks	3	6	10	30
(*e*) Railways ..	51	91	96	105
(*f*) Post	18	25	27	....
(*g*) Life Insurance ..	N.A.	6	8	10
(*h*) Other quasi-Government	N.A.	24	38	....
Total ..	215[b]	330	413	390
3. *All Organised Sector Establishments*	660[b]	882	1052	1111
4. *All Workers (Census)*[c] ..	1304	1687	N.A.	2198

Notes,—(a) Figures for Shops and Establishments given in the source are not used here as they appeared to cover many small establishments and family workers.

(b) Based on a very rough estimate of missing categories of organized workers.

(c) Note changes in Census definition of workers. The 1951 statistics are roughly comparable with those for 1961. They include secondary earners and all principal earners except those with unproductive sources of income. The 1971 definition is more restrictive.

(d) Reduction due to nationalization of banks in 1969.

[1] D. T. Lakdawala and Others, *Work, Wages and Well-being in an Indian Metropolis, Economic Survey of Bombay City*, 1963. Directorate of Employment, Bombay. Quarterly Returns, 1961, 1966 and 1971, *cf*, Heather and Vijay Joshi, *Surplus Labour and the City*, 1976.

STATEMENT No. 2

Estimated Employment in the Organized and Unorganized Sectors by Major Industry Divisions and Selected Industries, Greater Bombay, 1961

(Figures in thousands)

Industry	Organized Employees (1)	Unorganized Sector			Employers (5)	Total work-force (6)
		Total (2)	Employees (3)	Others (4)		
Primary Production	0.5	30.1	15.9	14.2	1.4	32.0
Manufacturing	466.7	194.3	122.1	72.2	27.5	688.5
Of which—						
Food and Beverages	14.5	10.4	6.5	3.9	1.9	
Tobacco	2.3	7.9	2.2	5.6	0.6	
Textile	267.7	27.6	7.7	19.9	6.3	
Printing	14.7	8.0	6.8	1.2	2.0	
Petroleum	11.2	5.4	5.0	0.4	0.4	
Chemicals	29.4	11.5	9.6	1.9	2.4	
Non-Metallic Minerals ..	13.2	9.1	7.3	1.8	0.5	
Metals and Engineering ..	95.5	41.0	31.5	9.5	7.6	
Miscellaneous	18.2	73.3	45.4	27.9	5.8	
Construction and Utilities ..	57.3	14.2	2.3	11.8	2.5	73.9
Trade and Commerce	56.6	200.3	88.0	112.3	47.5	303.8
Of which—						
Wholesale Trade	16.8	18.8	7.7	11.1	8.5	
Retail Trade	5.0	173.8	80.3	93.5	33.6	
Finance and Commerce ..	34.3	7.7	0	7.7	5.4	
Transport and Communications ..	101.2	85.5	44.6	40.8	2.6	189.3
Services	154.5	226.5	170.7	55.8	14.7	395.7
Of which—						
Public Administration ..	81.9	0	0	0	0	
Education	31.0	1.2	0.1	1.1	0.7	
Medicine	9.5	11.4	8.5	2.9	1.8	
Personal services	8.2	174.5	142.4	32.1	9.4	
Other services	23.9	39.4	19.7	19.7	2.8	
Unclassified	1.3	2.0	1.3	0.7	0.1	3.5
	837.6	752.3	444.9	307.4	96.0	1686.7

Notes—

Col. 1—Employees in the public sector and private sector establishments employing more than 25, including identifiable military personnel and excluding identifiable non-residents.

Col. 2—Col. 3 + Col. 4.

Col. 3—Difference between 'Employees in Non-Household Industry' given by the Census and Col. 1.

Col. 4—Single workers, family workers, workers in household industry, cultivators and Agricultural Labourers as reported in the Census.

Col. 5—Employers as reported by the Census.

Col. 6—Total workers reported by the Census, sum of Cols. 1, 2 and 5.

Sources.—(1) Census of India, 1961, Vol. X, Part X (1-B), Greater Bombay Census Tables: Primary Census Abstract, and Table B, IV, Parts A, B and C.

(2) Directorate of Employment, Bombay.

Domestic servants, other services, medicine and education which constituted services accounted for about 30 per cent of the unorganized work-force or 2,26,500 workers. The rest of the workers under services constituted *dhobis* (13,000), workers in small hotels and catering houses (50,000), casual labour in film industry and film extras, priests, astrologers, shoeshiners, masseurs, private tutors, self-appointed car-attendants, snake-charmers, street-dancers and acrobats.

The unorganized sector included 2,00,000 workers in trade and commerce, and they were about four times the number of organized workers. The majority of them were small shopkeepers and hawkers either self-employed or employees.

The majority of the workers in the unorganized sector of manufacturing were employees (1,22,000), but the number of those working on their own account was quite substantial *viz.* 42,600. Workers in household industry were 22,900 and family workers 6,600. They work in small establishments, but they are of considerable economic importance. Textile units in the unorganized sector covered more than 27,000 workers.

Garment-making is largely an unorganized activity carried by tailors working in small shops, and they numbered about 20,000. A majority of them were not employees but were self-employed persons, similar being the case with bidi makers. The workers in petroleum and rubber products were engaged mainly in retreading tyres and making of rubber goods; those in chemical establishments mainly produced soap, matches and common salt, while those in the non-metallic products sub-division produced building material, pottery and miscellaneous glass products. The metals and engineering sub-division which is by and large ancillary to large scale industry accounted for 41,000 workers, 75 per cent of whom were employees. The miscellaneous sub-division accounted for about 35,000 workers engaged in making wood products, leather goods, jewellery, watch repair and stationery articles.

" Two salient features of the unorganized work-force in manufacturing may be noted. First, it is clear that the ratio of non-wage labour to wage employees is higher in the more traditional industries such as tobacco, textiles, leather and food-preparations; in the more modern industries, the mode of production favours hired labour. Second, the unorganized sector is not entirely composed of extremely unskilled people. There is a very wide range of skills present and there is reason to believe that the low incomes earned are the result of lack of resources rather than of skill, effort or enterprise."[1]

Workers in transport and communications including lorry-drivers and cleaners, taxi-drivers, scooter-rikshaw drivers, *mathadi* workers, coolies, porters, tiffin carriers, etc., were estimated at 85,000, about half

[1] Heather and Vijay Joshi, *Surplus Labour and the City, A Study of Bombay* (Oxford University Press, 1976).

of whom were wage employees. Construction and utilities accounted for 14,000; and primary industries for 30,000 of whom about 8,000 were fishermen.

GROWTH OF THE ORGANIZED SECTOR, 1961-71

The following statement shows the growth of population and employment in Greater Bombay from 1961 to 1971[1] :—

STATEMENT No. 3

(Figures in '000 except percentages)

Year	Population	Workers as per Census*	Organized workers	Workers in manufacturing as per Census	Organized workers in manufacturing
1961 ..	4,152	1,687	883	689	467
1966 ..			1,046		536
1967 ..			1,041		539
1968 ..			1,036		527
1969 ..			1,039		527
1970 ..			1,078		556
1971 ..	5,969	2,198	1,111	930	571
Percentage decade variation.	43.8	30.3	25.8	35.0	22.3

* The criterion used by the Census to identify workers was altered in 1971 to become most conservative. The decadal change observed is an under-statement of employment growth on consistent definitions.

It can be observed from Statement No. 1 that employment in the organized sector as a proportion of Bombay's total work-force did not increase between 1951 and 1971. However the statistics for 1951 are rather uncertain and not suitable for detailed comparison, unlike those for 1961 and 1971. Organized employment did grow fairly steadily in the first half of the sixties. However conditions of economic recession and stagnation adversely affected employment in private sector industries. Recession and stagnation were arrested by the end of the sixties, but the increase in employment in the organized sector over the decade as a whole was only 26 per cent. During the same period the change in the total numbers at work must have been at least as great as the 30 per cent difference between the two Census counts of workers. The increase in the labour force during the decade was estimated at 34 per cent. Thus,

[1] Census of India, 1961 and 1971 and Directorate of Employment, *cf.* Heather and Vijay Joshi, op. cit.

not only had the number of workers outside the organized sector in the city remained substantial, but also they increased in terms of number and as a proportion of labour force. While the population of the city increased by nearly 20 lakhs and the total labour force by about 6 lakhs, the additional number of jobs increased by only 2.5 lakhs, in the organized sector. It means that the rest of the 3.5 lakhs additional workers found a means of livelihood either in the unorganized sector of the economy in Bombay or in the expanding industrial zone in the adjacent areas, or they were unemployed.[1]

It may be explained here that growth of employment in Bombay was adversely affected by a number of factors. Firstly, there was a recession in the economy in general and industries in particular. The cotton textile industry which is by far the biggest industry in Bombay was faced by market glut and a heavy reduction in production. A number of textile mills were closed, while many others were working at under-capacity. Though the demand recession was almost nation-wide, its effects were felt very acutely in the employment situation in Bombay. Secondly, government policy of discouraging further growth of industries in Bombay city and of decentralization of industries out of Bombay also affected the employment opportunities in Bombay proper. As a result, many new industries found a congenial home on the outskirts of the city, while a number of old factories in Bombay found it convenient to shift to the Thane area which offered better facilities for expansion of factory sites, etc.

As the new areas on the outskirts of Bombay, but within the Bombay Metropolitan Regional Development area, offered better incentives and better avenues, further growth of industries was diverted out of Bombay. During all these years industrial expansion was diverted to Thane, Belapur, Kalwa, Dombivli, Kalyan, Ulhasnagar, Ambarnath, Shahad, Ambivli, etc. To sum up, Bombay city lost, to some extent, its share of the further growth of industries and employment to the industrial complex in Thane region. The metropolitan economy expanded rapidly, not in the city, but in the adjacent areas in the Bombay Metropolitan Region.

It is seen from statistics that while there were only 32,000 new jobs in the organized sector in Bombay from 1966 to 1970, an addition of about 3 per cent over four years, Thane area gained 45,000 new jobs which meant an increase of over 45 per cent. Of the new jobs, manufacturing industries accounted for 20,000 in Bombay and 40,000 in Thane. In Bombay and Thane taken together, factory employment grew faster than that in the rest of the organized sector in the second half of the decade as also in the entire decade.

[1] Heather and Vijay Joshi, *Surplus Labour and the City.*

CHANGE IN ORGANIZED SECTOR EMPLOYMENT IN BOMBAY, 1961-1971

The changing composition of the organized sector employment in Greater Bombay is furnished in the following statement:—

STATEMENT No. 4

DECADE CHANGE IN ORGANIZED SECTOR EMPLOYMENT, BY INDUSTRY AND SECTORS IN GREATER BOMBAY, 1961 TO 1971

Industry	Estimated Employment		Decade change	
	1961 ('000)	1971 ('000)	Absolute No. ('000)	Percentage increase
	(1)	(2)	(3)	(4)
Agriculture, Fishery etc. ..	0.3	0.4	0.1	27
Mining and Quarrying ..	0.2	....	—0.2	—97
Manufacturing ..	466.7	570.6	103.9	22
of which—				
Cotton mills ..	229.0	226.3	—2.7	—1
Chemicals ..	29.4	52.9	23.5	80
Engineering ..	95.5	133.0	37.5	39
Other Manufacturing ..	112.8	158.4	45.6	40
Construction and Utilities ..	57.3	53.5	4.0	—7
Trade and Commerce ..	61.8	79.8	—17.9	29
of which—				
Banking, Insurance, Commerce, etc.	40.1	56.8	16.7	42
Transport and Communication ..	156.7	199.5	42.9	27
Services ..	139.8	207.3	67.5	48
of which—				
Public Administration ..	67.2	87.5	20.3	30
Education ..	31.0	58.8	27.7	89
Health ..	9.5	26.0	16.4	172
Total Public Sector ..	330.4	472.8	142.5	43
Total Private Sector ..	552.4	638.0	85.6	15
Grand Total ..	882.8	1,110.9	228.1	26

Note.—No attempt has been made to adjust these figures for non-Residents or military personnel, hence 1961 figures are not identical with those in Statement No. 2. Cols. 3 and 4 calculated on the basis of unrounded figures.

Source.—Directorate of Employment, Bombay, Quarterly Employment Returns, and *The Bombay Labour Market*, 1966.

Some of the salient features of the changes in employment situation in Bombay are given below:—

(1) *Recession in Cotton Mill Employment* : Cotton mills by far the oldest established factory industry of Bombay provided employment to nearly half the industrial workers in Bombay, in 1961. Their predominance as a source of employment was more in earlier times than that in 1961. The decade 1961-71 witnessed a considerable decline in employment in cotton mills. There was an acute recession in demand and production as also replacement of workers by machinery. The average levels of output and inputs of the Bombay cotton mills between 1968-70 as indices of those in 1958-60 show that the ratios of capital and material inputs in relation to labour have increased. The figures for the Bombay cotton mills as per the *Millowners' Association Annual Report,* 1971 are as under:—

INDEX OF INPUTS AND OUTPUTS, 1968-70

(1958-60 = 100)

Average daily working		Cotton consumption (Bales)	Daily employment	Yarn (Tons)	Cloth (Metres)
Spindles	Looms				
108	95	96	89	93	84

The trend in the production of the various qualities of cloth by the mills in Bombay from 1961 to 1970, as furnished in the *Indian Textile Bulletin* (1961 Annual and Monthly Bulletins in 1971) is shown below:—

Quality	Thousand metres		Percentage of total	
	1961	1970	1961	1970
All	13,71	11,20	100	100
Coarse	2,41	1,36	18	12
Medium	9,90	6,74	72	60
Fine and superfine ..	1,40	3,11	10	28

During this period the entire cotton textile industry in India was losing ground in the world markets, but the decline in mill employment was more conspicuous in Bombay than in the rest of the country. This could be attributed partly to the greater weight of high quality cloth in the output of Bombay mills and partly to the higher level of wages in Bombay as compared to other parts of India.

An interesting phenomenon as regards employment situation in Bombay is that while there was a decline in cotton mills, the growth of employment was much faster in a newer industry like chemicals. Pharmaceuticals, accounting for about 50 per cent of the decade increase in chemicals industry, more than doubled. Other members in the manufacturing group expanded employment at a rate comparable with other sectors of production. The highly sophisticated and technologically advanced industries such as petro-chemicals and electronic also expanded rapidly.

(2) *The Faster Growing Sectors* : Another salient feature of the growth of the economy and employment in Bombay in the sixties was the difference in growth in the public and private sectors. Although the private sector still remained the larger sector of the economy providing larger employment, the employment in public sector increased by about 43 per cent while that in private sector by only 15 per cent during the period 1961-71. Recession had affected mostly the private sector; employment in private sector declined between 1966 and 1968, and failed to regain its 1966 level until 1971. Although the public sector also did not escape the effects of the recession during the period, the impact of recession was only marginal. The public sector recorded a faster growth than the private sector even prior to 1966, by 24 per cent as against 15 per cent. An important event in this period was the nationalization of 14 commercial banks in 1969 which naturally increased the employment in the public sector. But apart from this transfer of employment from private to public sector, the decade growth in the public sector was 39 per cent while that in the private sector was only 18 per cent.

(3) *Women workers* : The proportion of female workers is much less than males in the organized sector of employment. Their proportion however increased from 6 per cent in 1961 to 8 per cent in 1971, *i.e.*, from 53,000 in 1961 to 88,000 in 1971 which means an increase by 66 per cent over a decade.

LABOUR FORCE OUTSIDE THE ORGANIZED SECTOR, 1961-1971

The labour force outside the organized sector such as employers, unorganized workers and the unemployed persons also forms a large proportion. An indication of unemployment is provided by the number of persons registered on the live-register of the Employment Exchange, which increased from 44,037 in December 1961 to 90,654 in December 1971. This indicates that open unemployment increased markedly. It may however be noted that the correspondence between the openly unemployed and the registered job-seekers is far from correct. It therefore

cannot give a conclusive evidence about the proportion of unemployment to the total labour force. A rough and broad picture of job-seekers and unemployment from 1961 to 1971, in Bombay can be seen from the following statement :—

STATEMENT No. 5

ORGANIZED EMPLOYMENT, REGISTERED JOB-SEEKERS AND UNEMPLOYMENT IN BOMBAY, 1961-71

(Figures in thousands)

	1961	1965	1968	1970	1971
1. Organized Sector Employment.	883	10,09	10,36	10,78	11,11
2. Registered Job-seekers ..	44.0	55.5	60.9	70.2	90.7
(*a*) Educated ..	18.4	19.7	25.2	29.6	43.5
3. Surveyed Unemployed ..	80.4*	N.A.	N.A.	N.A.	N.A.
(*a*) Educated ..	14.2*	N.A.	N.A.	N.A.	N.A.
4. Unemployed as percentage of Labour force.	4.55	2.32	N.A.	N.A.	N.A.

* As per 1961 Census.

Notes.—(1) 'Organized Sector' includes public sector and private sector establishments employing more than 25 persons.

(2) 'Registered Job-seekers' include number on Live Register of Bombay Employment Exchange at the end of December.

(3) 'Educated' include those attaining secondary level or above.

(4) 'Unemployed' include those seeking work but out of work for 15 days prior to enumeration.

As regards work-force in the unorganized sector, it is observed that it also increased as rapidly as that in the organized sector, if not at faster rate. It can be seen from the Statement No. 6 that at least in manufacturing and trading, the unorganized sector grew faster than the organized sector.

EMPLOYMENT DENSITY

It is interesting to study the employment density in Bombay which reveals peculiar characteristics. Employment density in many areas of the city does not correspond to population density. The 1968 study of employment density shows that of the 18.69 lakh jobs in Greater Bombay more than 75 per cent were located in the small area in the island city.

STATEMENT No. 6

WORKERS OUTSIDE THE ORGANIZED SECTOR IN GREATER BOMBAY IN 1971 AND COMPARISON WITH 1961

Industry	1971 (thousands)			1971-1961 As % of 1961		Interpretation
	Workers reported in Census	Organized	Non-organized	Census counts	Organized sector	
Primary Sector ..	28	1	27	—15	—25	Negligible organized sector.
Household manufacturing	29	..	27	27	..	
Non-Household manufacture	900	571	329	35	2	Unambiguo u s increase of non-organized.
Trade and Commerce	492	78	413	62	38	
Construction ..	67	29	38	49	1	Organized sector figures subject to error.
Transport and Communication	237	137	100	25	35	
Services and Public Utilities	446	276	169	4	50	Probable increase in organized sector notwithstanding note (*a*).
Total ..	2198	1091	1107	30	30	Probable relative increase of non-organized sector.

Notes.—(*a*) True changes in numbers at work are understated because of changed definitions. Those excluded by new procedure are unlikely to have been in organized employment. Hence increases outside the organized sector are understated.

(*b*) Adjusted for comparability with Census.

Source.—Heather and Vijay Joshi, *Surplus Labour and the City*, p. 70.

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The following statement shows the employment distribution and population density in various parts of Greater Bombay in 1968[1] :—

STATEMENT No. 7

DENSITY OF EMPLOYMENT AND POPULATION IN GREATER BOMBAY IN 1968

Area	Jobs	Percentage to total	Jobs per hectare	Population per hectare
1. Colaba	39,030	2.1	65	149
2. Fort	2,98,271	15.9	663	252
3. Bhuleshwar, Girgaum, Kalbadevi and Mandvi.	3,09,467	16.6	467	1,090
4. Malabar Hill and Cumbala Hill.	12,547	0.7	40	313
5. Tardeo, Byculla and Mazagaon..	2,05,933	11.0	265	717
6. Worli, Parel, Elphinstone Road and Sewri.	3,47,384	18.5	230	522
7. Dadar and Wadala ..	1,46,325	7.8	142	406
8. Mahim, Matunga, Sion and Koliwada.	64,775	3.5	46	289
9. Chembur and Trombay ..	43,705	2.4	9	42
10. Kurla, Ghatkopar and Vikhroli.	1,16,772	6.3	23	99
11. Bhandup and Mulund ..	53,481	2.8	9	27
12. Bandra, Khar and Santacruz ..	65,970	3.5	27	177
13. Vile Parle, Andheri, Jogeshwari and Goregaon.	1,01,988	5.5	14	68
14. Malad to Dahisar	63,261	3.4	6	33
Total ..	18,68,909	100	43	122

EMPLOYMENT EXCHANGES

Employment Exchanges play an important role in providing employment to the educated unemployed as also to skilled workers. The Directorate of Employment of the Government of Maharashtra have established three employment exchanges in Bombay, *viz.*, Regional Employment Exchange (in Fort Area), Sub-Regional Employment Exchange (at Grant Road) and Employment Exchange at Ghatkopar. The Regional Employment Exchange provides employment opportunities to educated candidates while the Sub-Regional Exchange is meant for unskilled workers and menial services. It is working as a full-fledged employment bureau. The statistics of employment exchanges in Bombay between 1959 and 1976 given below in Statement No. 8 are self-evident and need no comments.

[1] Bombay Metropolitan Regional Planning Board, *Regional Plan for Bombay Metropolitan Region*, 1970-91, Vol. I, p. 31.

STATEMENT No. 8

EMPLOYMENT EXCHANGE STATISTICS FOR GREATER BOMBAY, 1959-60 TO 1976

Year	No. of registration	Vacancies notified	Candidates placed in employment	Candidates on live register at the end of the year
1959-60	69,437	13,638	7,257	46,915
1966-67	99,953	33,404	16,869	48,827
1970-71	110,391	35,579	14,205	79,304
1972	102,521	38,676	15,004	136,128
1973	111,269	33,555	12,739	888,436
1974	95,124	24,053	10,644	149,030
1975	102,473	23,848	8,964	16,303
1976	44,578	7,433	1,047	21,004

PUBLIC AND PRIVATE SECTOR EMPLOYMENT

Besides being the capital of Maharashtra State, Bombay has provided a congenial home to a number of public sector offices including offices of the Central Government, commercial corporations, quasi-government bodies and local self-government bodies. In fact the proportion of employment in Central Government offices is very much larger than that in State Government offices. This is accounted for by the fact that Bombay is the headquarters of the two railway zones, *viz.*, Central Railway and Western Railway, the navy establishment, income-tax offices, the Bhabha Atomic Research Centre and a number of administrative and executive wings of the Government of India. The employment in local bodies in Bombay is also higher than that in the State Government. This is attributable to the fact that the Bombay Municipal Corporation is a mammoth organisation providing civic amenities to this premier city of India, and that it employs a huge personnel for manning its services and civic amenities. In keeping with Bombay's character as the commercial capital of India, there are several quasi-government bodies including commercial corporations and public sector undertakings which provide employment to a considerably large number of persons.

The private sector is here conceived to cover establishments which are not in the public sector and which ordinarily employ 25 or more workers for remuneration. Being a centre of industries and commerce, employment in the private sector in Bombay is bound to be high.

The following figures reveal the growth of employment in public and private sectors in Bombay :—

STATEMENT No. 9

EMPLOYMENT IN PUBLIC AND PRIVATE SECTORS

(Employment in '000)

Year	Central Government	State Government	Local Bodies	Quasi-Government	Total	
					Public Sector	Private Sector
(1)	(2)	(3)	(4)	(5)	(6)	(7)
1961 ..	158	41	70	61	330	N.A.
1965 ..	184	51	91	79	405	N.A.
1970 ..	195	62	95	121	473	N.A.
1975 ..	207	65	113	232	617	N.A.
1977 ..	214	65	115	194 (10)	588	609
1978 ..	218	65	119	199 (11)	601	611
1979 ..	226	68	124	214 (12)	632	610

The figures in brackets indicate the employment in quasi-State Sector.

Source.—Directorate of Employment [under "Employment Exchanges (Compulsory Notification of Vacancies) Act, 1959 "].

INDUSTRIALISATION[1]

Bombay has a comparatively long tradition of industrialisation. Under the influence of the British rulers and an enthusiastic class of entrepreneurs both foreign and indigenous, a good many mechanised industries grew up during the latter half of the last century. With the establishment of the first cotton mill in Bombay in 1854 a momentous growth of the textile industry was initiated. The first mill in Bombay was projected in 1851 by Mr. C. Nanabhai Davar and commenced work in 1854 as a joint stock company under the name of the Bombay Spinning and Weaving Company. Soon Bombay became the home of the textile industry. By 1865 there were ten mills in the city, working with 2,50,000 spindles and 3,380 looms. They provided employment to 6,600 persons and consumed about 42,000 bales of cotton per annum. It is noteworthy that a director of the Manchester Chamber of Commerce, speaking of the Bombay mills in 1867, pointed out that the long cloths, T-cloths and domestics produced by them had been steadily gaining favour with consumers in all districts and were actually preferred to Lancashire goods of the same class owing to the fact that the Bombay goods lasted longer than the finer and heavily sized cloth produced in England.

Between 1870 and 1875 seventeen new mills had been established, thus making a total of 27, working with 7,52,634 spindles and 7,781 looms, the capital invested in the industry being Rs. 224 lakhs. The industry

[1] For detailed history of industrialisation and analysis of structure of industries refer Chapter 5.

received a great impetus from 1875. The number of mills increased from 27 in 1875 to 32 in 1880; to 49 in 1885 and to 70 in 1890. The subsequent quinquennium witnessed a fall in the number of mills. However the reduction in number of mills was accompanied by a rise in employment, spindles, looms as well as consumption of cotton by the mills. The outbreak of plague in 1896-97, coupled with the severe famine of that year exercised for several years a most depressing effect upon the industry. The first epidemic resulted in a general flight of mill workers from the city. This necessitated open bidding for labour at street corners and the shattering of the tie hitherto binding the employer and the employed. This trouble was minimised by about 1898 as the industrial population felt that the chance of dying of plague in city, while in receipt of good wages was preferable to the prospects of starvation in up-country homes. This ensured revival of the cotton textile industry. The conditions of revival were followed by the inevitable consequences of over-production. Between 1892 and 1898 the number of mills in the island city rose from 119 to 136. The increase being almost entirely due to the establishment of new textile mills. Surprisingly this had taken place in spite of the belief that a fall in silver had exercised an adverse influence upon the trade and despite the fact that the China market, which was by far the chief outlet for Bombay's production of yarn, was being rapidly quitted. In 1899 the position of the industry was " most critical ".* By the end of that year nearly all the mills closed for three days in the week, while some of them were wholly shut down. Subsequent to 1902 however, the condition of the industry began to assume a more satisfactory aspect. The industry experienced excellent seasons in 1905 and 1906. The general progress of cotton spinning and weaving may be gathered from the fact that in 1908 the city contained 85 mills, having 27,34,863 spindles and 35,967 looms, employing daily on the average 1,01,536 workers and consuming about 12 lakhs of bales of raw cotton.

The general progress of the industry had been well sustained throughout the first decade of this century. The Bombay mills had many comparative advantages over western producers. The hinterland of Bombay extending over parts of Khandesh, Vidarbha, Marathwada and Gujarat provided the necessary raw cotton to the Bombay mills. In fact Bombay in those days was the biggest cotton market in Asia. The market for the manufactured articles was in the neighbourhood of Bombay. Labour too was very abundant and cheaper. These comparative advantages of the Bombay mills over the mills in European countries weighed higher than the high cost of machinery.

The statistics of cotton textile mills from 1865 to 1908 as given in the former edition of the *Bombay City Gazetteer* are quite revealing. The

* Sir George Cotton.

total number of factories increased from 119 in 1892 to 128 in 1896, to 138 in 1901 and to 166 in 1908. The rise in the number of factories by 47 over a period of only 16 years though not spectacular from present day standards, was really impressive in the hey-days of industrialization when the entire country was still in an agricultural-*cum*-pastoral stage.

In 1908, there were 166 factories registered under the Factory Act of 1881 (amended in 1891). They provided employment to 1,35,663 workers. The bulk of the employment was in the cotton textile industry which was followed by iron works and foundries.

The following statement gives the number of factories by classes in Bombay city in 1892, 1896, 1901 and 1908 :—

STATEMENT No. 10

Category	1892	1896	1901	1908
Cotton Mills	64	68	76	83
Silk Mills	1	2	2	2
Woollen Mills ..	2	2	1	3
Hosieries	3	2	2	2
Cotton Presses and Gins	11	9	8	7
Dye Works	2	2	2	4
Flour Mills	3	5	5	5
Oil Mills	2	2	1	1
Gas Works	1	2	2	2
Gun Carriage Factory ..	1	1	1	....
Arsenal	1	1	1	....
Mint	1	1	1	1
Dockyards	4	4	3	3
Printing Presses ..	7	9	10	16
Power Generator*	....	....	....	1
Bone Mill	....	....	....	1
Tannery	....	1	1	1
Saw Mills and Timber Works ..	1	2	2	2
Iron Works and Foundries ..	8	8	8	15
Locks and Cutlery Works ..	....	....	1	1
Metal Works	....	....	....	2
Tin Works	....	....	1	3
Paper Mill	....	....	....	1
Workshops	1	2	2	2
Art Manufacture	1	1	1	1
Total ..	114	124	131	159

* Owned by the Bombay Electric Supply and Tramway Company.

In the initial stages of growth the cotton textile industry had to face keen competition with imported Manchester goods. But the *swadeshi* movement which gathered a massive following gave a distinct impetus to local manufacturers. The industry developed at a rapid pace.

The following statistics show the production of cotton textile goods in Bombay during 1904-05 and 1908-09:—

STATEMENT No. 11

Goods	1904-05 (lbs.)	1908-09 (lbs.)
Grey Goods		
Chadars	10,116,529	9,395,365
Dhoties	6,329,266	11,770,378
Drills and Jeans	1,373,705	2,792,833
Cambrics and lawns	128,722	273,114
Printers	443,998	79,459
Shirtings and long cloths	33,834,436	34,004,115
T-cloths, domestics and sheetings	13,936,806	19,355,423
Other kinds	5,261,658	2,027,051
Total ..	71,425,120	79,697,638
Figured and coloured goods	20,529,150	27,172,650
Hosiery	571,367	382,475
Miscellaneous goods	393,707	21,817
Grand Total ..	92,919,344	107,274,580

The Bombay textile mills provided employment to about 98,000 persons in 1908, most of whom were Marathas from Ratnagiri and Kolaba districts, with a small sprinkling of Muhammadans.

The percentage of employment in cotton textile industry to total population in Bombay increased gradually upto 1921 in which year it reached the maximum of 11.25 per cent of the total population. The diversification of industrial activity after 1921, however, caused some decline in the percentage of employment in cotton textiles to total population.

The following statement shows the trend in the growth of the cotton textile industry and the percentage of textile workers to total population in Bombay from 1865 to 1961:—

STATEMENT No. 12

Year	No. of cotton textile mills	Employment in cotton mills	Population	Percentage of textile workers to population
1865	10	6,557	8,16,562	0.802
1881	32	31,351	7,72,196	4.06
1901	81	82,162	8,12,912	10.112
1921	83	1,40,000	12,44,934	11.25
1931	81	N.A.	12,68,206	....
1941	64	N.A.	16,86,127	....
1951	65	1,93,663	29,66,902	6.52
1961	63	1,97,404	41,52,056	4.75

The sub-joined statement shows the various stages in the gradual diversification of the industrial base of Bombay.

STATEMENT No. 13

NUMBER OF FACTORIES AND EMPLOYMENT IN REPORTING FACTORIES IN MAJOR SECTORS OF INDUSTRIES IN BOMBAY FROM 1923 TO 1957*

Year	Textile		Metal and Engineering		Printing and Publishing		Chemicals		Food except beverages	
	No. of factories	Employment	No. of factories	Employment	No. of factories	Employment	No. of factories	Employment	No. of factories	Employment
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1923 ..	92	1,52,488 (75.0)	92	30,204 (14.8)	35	5,115 (2.5)	9	759 (0.4)	16	1,021 (0.5)
1931 ..	89	1,31,700 (73.9)	108	23,617 (13.3)	59	5,632 (2.2)	20	4,879 (2.7)	29	1,801 (1.0)
1941 ..	145	2,04,307 (65.1)	329	46,780 (14.9)	194	8,833 (2.6)	46	4,504 (1.4)	73	6,031 (1.9)
1946 ..	184	2,14,586 (59.8)	477	64,040 (17.9)	210	10,697 (3.0)	75	7,510 (2.1)	94	8,340 (2.3)
1951 ..	427	2,34,818 (61.0)	802	73,031 (19.0)	285	13,253 (3.5)	176	13,467 (3.5)	199	8,194 (2.1)
1957 ..	458	2,43,654 (57.4)	919	91,405 (21.5)	317	14,739 (3.5)	195	15,855 (3.7)	275	9,997 (2.4)

* For detailed analysis refer Chapter 5.

Figures in brackets represent percentages of the total.

Source.—Dr. Lakdawala, *Works, Wages and Well-being in an Indian Metropolis.*

Factories and Factory Employment : Bombay is the industrial and commercial metropolis of India, and it would be very much realistic to say that Bombay is miniature India. The major modern industries in India are located in Bombay, as only a few other cities such as Calcutta, Madras, Bangalore, Jamshedpur and the environs of Delhi, share the total extent of industrialisation with Bombay. In keeping with the growth of Bombay, the organised sector provides employment to a large proportion of working population of Bombay. The organised sector, for this purpose, is conceived to include factories, shops and establishments, Railways, State Government, Union Government, Municipal Corporation, Reserve Bank of India, State Bank of India, Bombay Electric Supply and Transport Undertaking, and Bombay Port Trust. The organised sectors of employment conceived as above, provided employment to 9,53,049 persons in 1951. As per the 1951 Census, the total number of earners was 13,23,256 in Greater Bombay. It means that the organised sector provided employment to about 72 per cent of the total employment in Greater Bombay. This organised sector does not cover the persons engaged in primary industries, domestic services, construction, hawkers, porters and those plying taxis and other transport vehicles, as also those employed in private educational institutions and hospitals.

Employment in the organised sector rose to 11,20,567 in 1957 which meant an increase of 17.6 per cent over that in 1951. Thus on an average the employment in the organised sectors increased at the rate of 2.6 per cent per annum. It may however be noted that a number of factories did not report information regarding employment provided by them. The following statement gives the statistics of employment in the organised sector as also the estimated employment in the non-reporting factories in Bombay from 1951 to 1957:—

STATEMENT No. 14

EMPLOYMENT IN ORGANISED SECTOR, 1951-57

Year	Employment in organised sector	Estimated Employment in non-reporting factories	Total 2+3	Percentage variation over previous year
(1)	(2)	(3)	(4)	(5)
1951 ..	9,53,049	16,809	9,69,858	....
1952 ..	9,61,789	20,553	9,82,342	1.3
1953 ..	9,79,805	31,005	10,10,810	2.9
1954 ..	10,21,409	16,758	10,38,167	2.7
1955 ..	10,56,072	11,785	10,67,857	2.9
1956 ..	11,01,280	8,656	11,09,936	3.9
1957 ..	11,20,567	20,089	11,40,656	2.6

Examination of the structure of organised employment, the term structure being understood in the sense of agencies providing employment, reveals some interesting facts which are given below.

The shops and establishments, in Bombay which provided employment to 3,87,662 persons or 40.7 per cent of the total in 1951 was the largest single sector. This was closely followed by factories (other than government and local fund factories) which employed 3,58,098 persons or 37.6 per cent in 1951. The State and Union Governments and the Municipal Corporation together provided employment to 12.7 per cent. The Railways, B.E.S.T. and the Bombay Port Trust provided employment to 83,244 or 8.8 per cent of the total. The combined share of the Reserve Bank of India and the State Bank of India was only 0.3 per cent. This order of comparative importance of the various sectors as regards sources of employment had remained unchanged in 1957, with the exception of the importance of factories, and shops and establishments which had undergone a slight change. The share of factory employment in the organised sector diminished from 37.6 per cent in 1951 to 34.9 per cent in 1957, which meant a slight decline in the importance of factory employment. The share of shops and establishments however increased from 40.7 per cent in 1951 to 43.8 per cent in 1957.

It may however be explained that the share of industries and of shops and establishments in the total employment was somewhat different from that given above. This was mainly because the employment in government and local funds factories and the estimated employment in the non-reporting factories was not included in factory employment. Besides, the employment in industrial units not covered by the Factories Act was also not taken into account, and the persons employed in them were enumerated under shops and establishments, as such units were registered under the Shops and Establishments Act. Employment of a purely industrial character which was included under the heading of shops and establishments has to be added to the factory data in order to arrive at the figure relating to what the census authorities termed as the processing and manufacturing sector.

According to the 1951 Census data processing and manufacturing provided employment to 4,56,304 persons which formed 47.9 per cent of the total organised employment.

Factories : A more detailed consideration of the major part of the manufacturing sector, namely factories, is given below.

In 1923, there were 324 working factories which provided employment to 2,03,416 persons. Over a period of 35 years the number of working factories increased to 3,400 while the employment therein increased to 4,24,706. There was thus a more than ten-fold increase in the number of factories. The index number for employment went up to 209 in 1957

with 1923 as the base year.* The trend in development of working factories and factory employment in Greater Bombay by selected industry groups for 1923–1957 is given below.

The number of factories continued to increase from 1923 except for periods of slight set-backs such as in 1927, 1931, 1932, 1946, 1953 and 1954. In spite of changes in the coverage of Factories Act, it can surely be said that the number of factories continued to increase during 1928–36, when the level of factory employment throughout was lower than that prevailing in any previous year.

The Second World War encouraged the growth of industries in Bombay. All the industries worked to full capacity, and several new factories in the fields of electrical equipment, machine tools, basic chemicals, synthetic resins, plastics, transport equipment, pharmaceuticals and hydrogenated oils were established in Bombay.

Industrialization in Bombay gathered further momentum in the post-Independence period. The number of factories registered under the Factories Act showed a sudden increase in 1949 (2,319) over that in 1939 (940). In fact factories increased by 146.7 per cent in 1949 over those in 1939. The percentage increase in factory employment from 1939 to 1949 was however not commensurate with the percentage increase in number of factories, though factory employment also increased substantially. The lagging of employment behind the number of factories might be attributed to the faster growth of small-scale industries after Independence. The percentage increase in the number of factories and factory employment in Greater Bombay showed a continuously rising trend from 1950 onwards. The growth rate of industries and factory employment was particularly very much higher in 1962 over that in 1939 and 1958. The number of factories increased from 940 in 1939 to 5,412 in 1962, which means a percentage increase of 475.7, while employment increased from 2,21,376 in 1939 to 5,61,782 in 1962, which means a percentage increase of 153.8. There was however a decline in the proportion of employment per factory from 1939 to 1962. This might be partly due to the preponderance of small-scale industries in the increasing number of new factories after Independence, and partly to adoption of more capital intensive and labour saving machinery in modern industries.

The following statement gives the statistics of number of factories and factory employment in Greater Bombay from 1939 to 1962:

* The Factories Act was amended from time to time from 1891 to 1948. However, the changes were only marginal. The employment data over the whole period are, therefore, broadly comparable. The classification of individual industries adopted from 1950 onwards was however different from that adopted earlier. Attempt is, however, made to rearrange the data relating to some industries for earlier years and presented them in a comparable form.

STATEMENT No. 15

GROWTH OF FACTORIES AND FACTORY WORKERS IN GREATER BOMBAY FROM 1939 TO 1958 AND 1962*

Year	No. of factories	No. of workers	Percentage increase over 1939		No. of workers per factory
			Factories	Workers	
1939 ..	940	2,21,376	....	....	236
1940 ..	1,002	2,29,267	6.6	3.5	230
1941 ..	1,078	3,14,045	14.7	41.8	294
1942 ..	1,154	3,36,975	22.8	52.2	294
1943 ..	1,252	3,75,502	33.2	69.6	300
1944 ..	1,394	3,92,453	48.3	77.2	283
1945 ..	1,482	3,91,081	57.7	76.2	264
1946 ..	1,481	3,58,658	57.6	62.0	243
1947 ..	1,511	3,59,380	60.7	62.3	239
1948 ..	1,820	3,78,440	93.6	70.9	209
1949 ..	2,319	3,77,056	146.7	70.3	163
1950 ..	2,752	3,75,094	192.8	69.9	159
1951 ..	3,064	3,83,892	226.0	73.3	125
1952 ..	3,204	3,73,860	240.9	69.0	117
1953 ..	3,071	3,68,587	226.7	66.7	120
1954 ..	3,117	3,42,519	231.0	54.8	110
1955 ..	3,282	4,11,395	239.0	86.0	125
1956 ..	3,297	4,20,991	250.0	90.0	127
1957 ..	3,400	4,45,005	262.0	101.0	131
1958 ..	3,813	4,67,089	306.0	111.5	123
1962 ..	5,412	5,61,782	475.7	153.8	104

It should however be remembered that before 1948 factories were governed by the Factories Act of 1934 which covered factories employing 20 or more workers and using mechanical power. The 1948 Act was applied to factories employing 10 or more workers using mechanical power and to factories employing 20 or more workers but not using power. The figures in the table since 1949 are according to the 1948 Act. It is estimated that in the year 1949, the amendment in the Act made a difference of only 3,088 workers out of a total of 3,77,056 *i.e.* less than 1 per cent. The comparability of factory employment data over the whole period is, therefore, not vitiated. It has also to be remembered that the limits of Greater Bombay were extended on two occasions, once in 1950 and then again in 1957.

Income generated by Industries : Industries are by far the largest and the most important sector of the economy of Bombay. The industrial

* Bombay Municipal Corporation, *Development Plan for Greater Bombay*, 1964, p. 31.

sector contributes about half the total income generated in Greater Bombay. The estimates of regional income prepared by the Bureau of Economics and Statistics of the Government of Maharashtra show that factory establishments contributed Rs. 35,825 lakhs to the total income of Rs. 69,241.90 lakhs in 1964-65 in Greater Bombay. The annual average *per capita* income in Greater Bombay was about Rs. 1,500 while the *per capita* income generated in the whole of Maharashtra was only Rs. 524. If Greater Bombay is excluded from the calculations the average annual *per capita* income generated in the rest of Maharashtra works out to only Rs. 400 (1964-65). The higher *per capita* income in Greater Bombay can mainly be attributed to the development of industries and lucrative employment in industries.

The following statement gives the estimates of income in the various sectors of the economy of Greater Bombay in 1964-65. The estimates are based on current prices in 1964-65:—

STATEMENT No. 16

REGIONAL INCOME OF GREATER BOMBAY, 1964-65

(Figures in lakhs of rupees)

Sector	Regional Income
1. Agriculture	112.06
2. Animal husbandry	189.55
3. Fisheries	838.50
4. Mining	28.35
5. Factory establishments	35,825.00
6. Utilities:—	
(*a*) Gas	114.30
(*b*) Electricity	633.38
(*c*) Water Supply	19.74
(*d*) Warehousing	19.16
7. Small enterprises	1,074.00
8. Construction	531.24
9. Communications	244.00
10. Railways	1,790.90
11. Transport:—	
(*a*) B.E.S.T.	709.16
(*b*) Air India International	423.06
(*c*) Indian Airlines	177.90
(*d*) Water transport	1,530.64
(*e*) Unorganised road transport	1,408.15
(*f*) State transport	8.25
(*g*) Others	27.83

STATEMENT No. 16—*contd.*

(Figures in lakhs of rupees)

Sector	Regional Income
12. Banking	3,456.00
13. Commerce	9,943.56
14. Professions and liberal arts	2,247.30
15. House properties	4,967.10
16. Domestic services..	688.80
17. Public administration	2,233.77
Total ..	69,241.90

Source.— (1) Bureau of Economics and Statistics, Government of Maharashtra.
(2) Statistical Wing, Town Planning and Valuation Department, Government of Maharashtra.

Location of Industries : As pointed out in one of the studies on Greater Bombay, the location of industries in Bombay is very defective. In the nature of things the existence of the industrial zone in the heart of the city is highly undesirable. The concentration of industries has also raised the problem of housing of the industrial workers. To say the least, it has generated squalid and sordid conditions of living in Central Bombay.

There is also a growing realization that even from the economic point of view the advantages of localization of industries have reached a stage of saturation.

The Government as well as the Bombay Municipal Corporation appear to be aware of this problem, and some action for shifting non-conforming industries (with temporary permits) to conforming places at different locations in industrial zones has already been started.

These efforts on the part of the Government as well as the Municipal Corporation however did not bring out any worthwhile results. *Firstly*, the existing and established industries were most reluctant to shift to the new site. Since there is no statutory provision of shifting them to the new location nothing worthwhile could be achieved. *Secondly*, the industrial plots or sheds were allotted to new industries which meant further concentration of industries in Greater Bombay. *Thirdly*, various vested interests including trade unions opposed shifting of established industries out of Bombay, and made a hue and cry that the flight of industries out of Bombay would be in the direction of other States rather than to suitable localities in Maharashtra. The results are therefore what they are. Even the mills which were closed and were subsequently taken over by Government as 'sick mills' could not be shifted to cotton producing

and cheaper labour areas in the State on government initiative. Contrary to expectations factories burnt in fires were allowed to re-build in the old congested premises. There also appears to be no restriction on the establishment in Bombay of registered offices of factories which are actually out of the city or even out of the State. The dimensions of the problem of concentration and congestion of industries have therefore widened further.

Industrial Growth of Bombay : The saga of industrial growth in Bombay is a glorious tale in the history of industrialisation not only of Maharashtra State but also of the entire country. A number of enterprising men and industrialists of vision have left their mark upon the land, and contributed, in greater or less degree, to the immense growth of this industrial metropolis. With short-lived aberrations, the city continued to attract diverse industries and industrial houses. The saga of industrialisation on modern lines started with the commencement of the cotton textile industry in 1854 which grew in importance and magnitude, and had far-reaching influences on the economic and social life in the city. The mill industry of Bombay has rightly been called the foremost indigenous industry of India. From small beginnings, the industry now is one of international importance and plays a great and important role in the prosperity of Bombay. The history of growth of this industry is already furnished in the earlier pages.

Cotton Textiles : As per the Annual Survey of Industries in 1975-77, the cotton textile industry of Bombay was constituted by 197 registered factories, which formed 19.78 per cent of the cotton textile factories in Maharashtra. The capital investment in these units in Bombay was computed at Rs. 3,00,21 lakhs or 73.20 per cent of that in Maharashtra. The cotton textile units in Bombay provided employment to 1,95,318 persons or 65.04 per cent of the employment in this industry in Maharashtra. The output of the industry in Bombay was worth Rs. 6,91,87 lakhs or 77.60 per cent of that in the State. The value added on manufacture of the cotton industry in the city was as high as Rs. 1,92,06 lakhs or 82.82 per cent of that in Maharashtra as a whole.

Engineering : The lead given by the cotton textile industry was generally followed by the engineering industry. For the general industrial growth of Bombay, it may be said that development of the engineering industry in particular has contributed significantly. There are several hundred manufacturing units producing a variety of both capital goods such as textile machinery, printing machinery, machine tools, etc., and consumer goods like fans, bicycles, scooters, automobiles and several other articles. There are giant manufacturing complexes like, Mukund Iron and Steel, Richardson and Cruddas, Premier Automobiles, Automobile Products of India, etc., in Greater Bombay. Bombay's share in the engineering industry in

India is estimated to be about one-tenth of the country's total output.* The actual figures of capital investment in engineering industry of Bombay though not available, are estimated to be around Rs. 150 crores.

The growth of the engineering industry in Bombay gathered momentum mainly after the Second World War in general and Indian Independence in particular. The war provided a stimulus for its initial growth in so far as the supplies of the goods by way of imports were curtailed on account of the war. The defence efforts of the Government of India warranted considerable supplies of the goods to meet the demands of the armed forces. After the Independence of the country various consumer items like bicycles, automobiles, fans, sewing machines, household electrical appliances, etc., and the capital goods like textile machinery, general machinery, machine tools and plant and equipment for other industries received priorities in the strategy of industrial planning. The Government of India encouraged the growth of these industries by granting tariff protection in various ways, by curtailment of imports and by providing many incidental incentives. This acted as a stimulus to incorporation of new units and expansion of the existing ones in Bombay. The development of large scale enterprises provided the stimulus for the growth of ancillary industries which manufacture small parts and equipment.

Infrastructure facilities inclusive of means of easy transport, an excellent harbour, hydro-electric power, technocrats, technical know-how and capital market are directly responsible for the growth of engineering industry in Bombay. In fact, its growth is complementary to the growth of other well-developed industries like textiles in Bombay.

Chemical Products : The chemicals and chemical products industry found a congenial home in Bombay ever since the Second World War. The war efforts of the Government of India provided the necessary impetus to the incorporation of many units as the supply of imported material was drastically cut during the war. The development of other industries, particularly, textiles, engineering, explosives, pesticides, etc. needed a number of chemicals, which encouraged the growth of the chemicals and chemical products industry. The enormous growth of textile industry which needs various chemicals and dyes as also the progress of the pharmaceuticals and drugs industries gave a fillip to this industry during the post-war period.

The important segments of the chemicals and chemical products industry are drugs and pharmaceuticals, petrochemicals, dye-stuffs, paints and varnishes, plastic products, fertilizers and pesticides, organic

* K. R. Sheshadri, *Profits (in Selected Industries of Bombay City and Suburbs)*, unpublished thesis, University of Bombay.

chemicals, inorganic chemicals, acids, alkalies and a number of other basic chemicals and fine chemicals.

The first pharmaceutical and chemical products factory was established at Bombay in 1887. The industry however took shape only in this century. Besides the vision and efforts of the three dedicated persons, *viz.* P. C. Ray, T. K. Gajjar and B. D. Amin in Western India a significant development was the establishment of the Haffkine Institute in Bombay in 1904. The Bombay pharmaceutical industry received a fillip during World War I. The establishment of Messrs. Foster & Co., May and Baker and Zandu Pharmacy were important landmarks in the growth of the industry.

The rapid growth of the industry had however to wait till the dawn of Independence. In the immediate post-Independence years from 1948 to 1953 several reputed international companies set up processing facilities in Bombay. A number of new units were commenced not only with the latest technology available from the advanced countries but also with foreign capital participation. The excellent infrastructure facilities coupled with foreign technical know-how stimulated the growth of the industry in Bombay which now enjoys a high reputation not only in India but also in all the continents. The tie-up with multi-national concerns also provided an impetus to research and development in this industry in Bombay. Two of India's best drug research laboratories *viz.*, CIBA-GEIGY and Hoechst Research Centre are located in Bombay. The industry now encompasses the whole spectrum of pharmaceutical operations, research, production, marketing, quality control and professional management. There are about 454 pharmaceutical and drug units in Bombay.

The entire chemicals and chemical products industry is highly research and technology oriented. Its development gathered momentum mainly during the post-war period. But for very short-lived aberrations the industry kept a rising trend of development. As per the Annual Survey of Industries of 1975-77, there were 454 registered factories in this industry in Bombay which provided employment to 53,479 persons. The number of factories and employment in the industry in Bombay constituted 49.02 per cent and 51.24 per cent, respectively of those in Maharashtra State as a whole. The capital investment in the industry was to the extent of Rs. 4,09,17 lakhs or 47.20 per cent of the industry in the State. The capital investment in this industry was more than that even in the cotton textile industry of Bombay (Rs. 3,00,21 lakhs). The output of the industry was valued at Rs. 8,60,37 lakhs or 53.25 per cent of that in the Maharashtra industry. The value added on manufacture

in this industry in Bombay was computed at Rs. 2,02,76 or 53.32 per cent of that in the industry in the State. As in the case of capital investment, the value of output and the value added on manufacture by the chemicals and chemical products industry were higher than those in the cotton textile industry of Bombay.

Petroleum : The petroleum industry, which is by far the most vital sector of the national economy, is an important industry in Bombay. It has contributed to the growth of Bombay during the last about 30 years. Of the five oil companies engaged in the refining and marketing of petroleum products in India, three are located in Bombay. Of the three oil companies in this city, the Bharat Petroleum Corporation and the Hindustan Petroleum Corporation, both of which are in the public sector at present, have their refineries at Trombay, while the third public sector company, the Indian Oil Company with its registered office in Bombay, has the headquarters of its Marketing Division in Bombay. The giant refineries of the two companies referred to above process huge quantities of petroleum products and employ a large number of workers and personnel. The Lubrizol India Ltd., a subsidiary of the Hindustan Petroleum Corporation, is another Government of India undertaking on the outskirts of Bombay. It manufactures chemical additives, solubilising agents, engine oil dispersant and intermediate components.

The Burmah Shell Company which was the private sector predecessor of the Bharat Petroleum Corporation was incorporated on 3rd November 1952, and commenced crude distillation on 30th January 1955. The refineries owned by this company along with its industrial and commercial interest were taken over by the Government of India by constituting the Bharat Petroleum Corporation in January 1976. The Bharat Petroleum refinery has a crude processing capacity of 5.25 million tonnes per annum. It has made substantial technological advancements resulting in increased processing capacity, in improved product yields and reduced fuel consumption. It processed twelve different types of crudes, and was the first to process the off-shore Bombay High Crude in 1976.

The ESSO Refineries Co. which was the private sector predecessor of the present Hindustan Petroleum was incorporated in the mid-fifties, and was marketing about 2.5 million tonnes of petroleum products. The Hindustan Petroleum Corporation was constituted as a public sector enterprise after Government take-over of the former ESSO Company along with its refinery at Bombay in 1974. The Corporation amalgamating the Caltex Oil Company (December 1976) and the Kosangas (1979) has a huge processing and marketing capacity of petroleum products. Its Bombay refinery* has a capacity of 3.5 million

* It has another refinery at Visakhapattam with an annual capacity of 1.5 million tonnes.

tonnes per annum, while its lubricating oil refinery, *viz.*, the Lubrizol India, is capable of manufacturing about two lakh tonnes of lube oil base stocks and other products annually. The Corporation has made plausible technological advancements and improvements comparable to international standards.

The refineries in Bombay are the pride of the nation and they have a vital role to play in the national economy. They have several plans and schemes for future development. Details of these undertakings are given in Chapter 5 on Industries.

The Bombay High is a saga of India's crude exploration efforts, and a glorious tale of the country's strides towards economic prosperity and self-sufficiency in this vital sector of the economy. The Bombay High Oil-fields, 686 sq. kilometres in area, were commissioned in 1976. The crude and associated gas were discovered in 1974 and production was started in 1976. The average rate of production from the oil-fields in 1981 was 1,20,000 barrels or 16,000 tonnes of crude oil per day. The annual production of oil was planned to be augmented to twelve million tonnes from 1983. It is remarkable that this will constitute about 40 per cent of the total oil production in India. The details of the Bombay High are given in subsequent pages in this Chapter as well as in Chapter 5 on Industries.

Petrochemicals : The petrochemical industry has emerged as the principal supplier of basic chemicals which were formerly derived from coal, alcohol and vegetable oils ever since the technology using petroleum distillate as the main ingredient was developed. Petrochemicals began to be manufactured in India in 1961, and the industry made rapid progress since then. It emerged as an important industry only from the sixties. The high cost of crude had an adverse impact on the development of this industry after 1974. However, the industry has kept a good rate of development.

The Union Carbide India Ltd., Trombay, established the first integrated petrochemical complex in India in 1966, which was followed by the National Organic Chemical Industries, Thane. The Naphtha Cracking plant of the Union Carbide with an annual consumption of 60,000 tonnes of Naphtha is worthy of mention. This company also manufactures carbons, midget electrodes, industrial chemicals, dry cells and batteries for radio and telecommunication purposes.

The industry grew rapidly since 1966, and it currently produces raw materials for synthetic fibres, plastics and a wide range of organic chemicals. The availability of crude oil and gas from the Bombay High and

Bassein fields would lead to an even more rapid development of the industry in the Bombay-Thane-Uran complex in the years to come.

The raw materials required for the petrochemical industry in Bombay are obtained from various sources. Gaseous sources are found in Ankaleshwar, Kalol, Cambay oil-fields near Bombay. Crude oil has so far been ruled out as a source of petrochemicals. Refinery gases and refinery distillates and residues are available in Bombay and its environs. Naphtha cracking is an important aspect of the petrochemical industry as naphtha is a good source of petrochemicals.

The petrochemical industry suffered a slump in production in many countries, including the U.S.A., Japan and Western Europe, in 1980 which was mainly due to the rising cost of crude oil as the latter rocketted by over 170 per cent from December 1978 to December 1980. In spite of the escalating prices of crude oil, the petrochemical industry in Bombay has been growing very fast, and is in fact awaiting a bright future in view of the explorations in the Bombay High and Bassein Oil and Gas fields.

Fertilizers : The fertilizer industry, started in Bombay in 1924 on an humble scale, is an important industry in this city at present. Bombay with an excellent harbour, a network of communications, proximity of oil refineries and the newly developed Bombay High, provides a congenial ground for the growth of this industry. It was therefore in the most fitness of things that the Government of India commissioned a giant fertilizer plant at Trombay. The Rashtriya Chemicals and Fertilizers, Trombay, incorporated during the Third Five Year Plan was originally intended to produce urea and nitro-phosphate in addition to ammonium sulphate. It has now diversified its fertilizer products, and is equipped to produce a range of chemicals including elemental sulphur which is so very rare in the country. It has an installed capacity to produce 99,000 tonnes of urea per annum. It has recently expanded its capacity for production of urea. Its installed capacity for production of complex fertilizers is three lakh tonnes and of ANP 3.61 lakh tonnes per annum. The discovery of the Bombay High and the Bassein Oil-fields promises new vistas of production of fertilizers in Bombay and Thal Vaishet, on the basis of new feedstock which is bound to result in economies of cost. The naphtha and associated gas are to serve as principal feedstocks which are bound to optimise costs. Hence the bright future for the industry in Bombay.

Basic Metals : The basic metals and alloys industry is another important industry in Bombay. The history of this industry is traceable to 1857 in which year Messrs. Richardson and Cruddas engineering works were established. It was then one of the largest engineering works in India, providing employment to about two thousand persons. In 1909, there were

15 foundries and metal works. Besides, there were six other factories in metal, lock, cutter and container manufacturing including the Godrej & Boyce and Co. The basic metals and alloys industry as per the Annual Survey of Industries during the period 1975-77 comprised 294 registered factories in Bombay, which formed 44.55 per cent of the factories in this industry in Maharashtra as a whole. Greater Bombay ranks the first among the districts of the State in respect of the number of factories, invested capital, employment, inputs, output, value added on manufacture, etc. by this industry. The capital investment in this industry in Bombay was to the extent of Rs. 90,80 lakhs or 32.39 per cent of the capital invested in the entire industry in Maharashtra. The employment in this sector of industry stood at 29,663 persons or 45.73 per cent of the total employment in this industry in the State. The output of the Bombay factories was valued at Rs. 2,18,01 lakhs or 43.44 per cent of the output in the metal and alloys factories in Maharashtra State.

The fabrication of metal containers and cans commenced in Bombay during the First World War when supplies of imported containers required by the oil companies became scarce in the country. The growth of the industry gathered momentum after the Second World War. This phenomenon could be attributed to the growth of chemicals and chemical products industry, pharmaceutical industry, vanaspati, petroleum products, paints, dye-stuffs, toiletries and many other industries in Bombay, which require containers of various sizes and types. The industry has underwent technological improvement in recent years which ensures the purity and non-contamination of the products to be packed. The Metal Box Company of India, the Zenith Tin Works, Gannon Dunkerley, Poysha Industrial Co., Mahindra Owen are the principal manufacturers in Bombay.

Automobiles : The automobile industry of Bombay occupies a place of honour in the industrial sector of India. The assembly of cars and trucks from imported components was commenced by General Motors India Ltd. in Bombay, in 1928. This pioneering enterprise was followed by the establishment of the Premier Automobiles in Bombay in 1944. This year can be said to be the most important landmark in the history of the indigenous automobile industry of India. This company was followed by two esteemed companies at Bombay, namely, the Mahindra and Mahindra established in October 1945 which commenced production in 1949, and the Automobile Products of India which was established in 1949 and commenced production in 1955. Besides the three esteemed companies mentioned above, there are several factories in Bombay manufacturing automobile accessories, ancillaries and parts. The industry in Bombay comprised 145 registered factories providing employment to about, 19,088 persons in 1975-77 period. The value of products of the industry stood at Rs. 1,20,09.63

lakhs and the value of total output at Rs. 1,29,35.35 lakhs per annum during the period of Annual Survey of Industries in 1975-77.

Machine Tools : The machine tool industry which plays an important role not only in providing efficient consumers goods but also in building up the infrastructure of the economy is one of the major industries in Bombay. The requirements of expanding industrialisation during the Second World War and the scarcity of imports on account of the war acted as a stimulus to the growth of this industry in Bombay. The pace of growth of this industry gathered momentum during the Second Five Year Plan when large composite units in the private sector expanded. Foreign collaboration enabled a rapid progress of the industry in Bombay during the sixth decade of this century. The eminent machine tool manufacturers in Bombay include Godrej and Boyce Mfg. Co., Ralli Wolf, Kramps Hydraulic (India), Vickers Sperry of India, Indian Tool Manufacturing Ltd., Investa Machine Tools and Engineering Co., Garlic Engineering, Siemens India Ltd., Advani Oerlikon, Voltas Ltd., Batliboi and Co., Consolidated Pneumatic Tools Co., Greaves Cotton and Co., Electro Pneumatics, Dee-Key Industries, Bharat Tool Mfg. Co., Horstanann India Ltd., and a number of many others. The Larsen and Toubro Ltd. incorporated in 1946 is one of the pioneers in Bombay. As per the Annual Survey of Industries in 1973-74, there were 35 machine tool manufacturing factories in Bombay which provided employment to 2,371 persons. The capital investment of the Bombay factories was to the extent of Rs. 433.87 lakhs, while the value of their total output was computed at Rs. 798.95 lakhs. The value added on manufacture was of the order of Rs. 280.62 lakhs in 1973-74. Machine tools manufactured in Bombay are exported to the U.K., Europe, the U.S.A., Sri Lanka, Middle East, South-East Asian countries and parts of Africa, after meeting indigenous demand. The IMTEX-82 Exhibition held in Bombay in early 1982, stands testimony to the technological achievements in the machine tool industry in India, and Bombay was the befitting venue for the same.

Small tools, hand tools and accessories were manufactured by a firm in Bombay for the first time in 1937[1], and this was the first firm in India in this industry. It was during the Second World War that a factory for the manufacture of grinding wheels was established in Bombay by Grindwell Abrassives Ltd. in collaboration with Czechoslovakian engineers.[2] This was a pioneering unit in the country in the field. The small tools and hardware industry in Bombay comprised 162 registered

[1] Indian Tariff Board Report, 1949.

[2] *Kothari's Investor's Encyclopaedia.*

factories which provided employment to 8,528 persons, as per the Annual Survey of Industries of 1975-77.

Steel Furniture : The Godrej and Boyce Manufacturing Company, established towards the end of the 19th century, is a pioneering firm in Bombay, manufacturing steel furniture, locks, padlocks, steel cupboards, refrigerators, soaps, edible refined oils and a number of consumers goods. Besides, there are a number of manufacturers of steel furniture which grew mainly after the Second World War in general and the mid-fifties in particular. There were 29 steel furniture factories in Bombay providing employment to 7,445 persons as per the A.S.I. of 1975-77. The Bombay firms export many items of furniture to foreign countries after meeting domestic demand.

In spite of paucity of land for industrial location the leather goods industry has found a home in Bombay. The Carona Sahu Company, established in 1953 is one of the leading manufacturers of leather-wear not only in Bombay but also in India. Most of the other factories in the industry are in the small-scale sector.

The history of industrial fasteners and screws industry in the city is traceable to 1947 during which year a large unit in Bombay took up production of wire nails and other fasteners.[1] The Guest Keen Williams Ltd., first incorporated in India at Calcutta in February 1937, commenced manufacture of a number of items at Bombay in September 1953.

Bicycle manufacturing industry in Bombay and in India dates back to 1939 when the Hind Cycles Ltd. started manufacture of a complete bicycle in Bombay. It was the pioneer in the bicycle industry in India. The concern was taken over by the Government of India, under the aegis of the National Bicycle Corporation of India, in a recent year. It has two plants in Bombay.

Industrial Machinery : Manufacture of cotton textile machinery is an important industry in Bombay. It caters to the needs of the textile industry in respect of machinery, accessories and various fabricated equipment which was entirely imported upto the Second World War. In the post-war period, several machinery manufacturers as well as cotton textile mills in Bombay commenced production of the machinery required by cotton mills. The pioneer in this field in Bombay was the Acme Manufacturing Co. Ltd. which commenced production of ring frames in 1947-48.[2] The lead given by this concern was followed by the Star Textile Engineering Works in 1948 and the National Machinery Manufacturers in 1954.[3]

[1] Government of India, *Handbook of Commercial Information*, 1963.
[2] Ibid.
[3] *Kothari's Investor's Encyclopaedia*.

Industrial machinery which constitutes a vital sector of the national economy was entirely imported from the western countries upto the beginning of the Second World War. The growth of this industry was initiated by the private sector in Bombay during the Second Five Year Plan. The infant industry was granted tariff protection in the initial stages, besides restrictions on imports. This encouraged growth of the indigenous industry in diverse directions. The pace of growth of this industry gathered further momentum in the mid-sixties. A number of large-scale manufacturers including machine tool companies undertook production of machinery for other industries as well as machine tools.

Typewriter manufacturing though not a very large industry is an important one from the point of view of utility of the product. The Godrej and Boyce of Bombay can be regarded as a pioneering concern, not only in Bombay but also in India, in the manufacture of this intricate machine. This firm was the first to undertake the job of manufacturing of an All India Typewriter. The birth of the Indian typewriter at a time when even the western countries were also not well-equipped for the manufacture of this high precision job gives tremendous credit to Indian enterprise in Bombay.

A number of industries and factories manufacturing a wide range of consumer goods and capital goods were established during the post-war period in general and the post-Independence period in particular. The war efforts of the Government of India made it imperative on the part of the authorities to encourage the growth of many defence-oriented as well as consumers goods and capital goods industries. The curtailment of foreign supplies also provided a stimulus to the growth of many industries. The cessation of hostilities in 1945 brought about conditions of slump. The competition from imported articles after the war had an adverse impact on the infant industries in Bombay as in India. A number of industries appealed to the Government for tariff protection, which compelled the authorities to appoint Tariff Boards and Tariff Commissions from time to time. As per recommendations of these bodies the Government granted tariff protection from time to time. The Government of Independent India adopted progressive policies with a motive to encourage growth of indigenous industries and to attain self-sufficiency. Accordingly not only tariff protection was granted to many industries but also import of many goods was totally banned or highly restricted.

These measures encouraged the growth of manufacturing of all sorts of machinery, metal products, electrical machinery and transport equipment. The statistical information of these four sectors of industry in Bombay as per the Annual Survey of Industries of 1975-77 are given below:

STATEMENT No. 17

	Metal products and parts except machinery	Machinery, machine-tools and parts except electrical machinery	Electrical machinery, apparatus, appliances, supplies	Transport equipment and parts
Factories:				
Number ..	751	630	454	223
Percentage* ..	67.05	59.38	71.99	66.17
Invested capital:				
Rs. in lakhs ..	1,00,24	1,12,84	1,43,58	87.53
Percentage ..	67.12	32.63	60.82	29.90
Employment:				
Number ..	37,818	39,491	37,277	33,754
Percentage ..	70.52	39.20	63.86	58.38
Output:				
Rs. in lakhs ..	2,16,91	2,33,23	2,74,99	1,74,93
Percentage ..	72.32	38.64	65.40	52.72
Value added:				
Rs. in lakhs ..	57,93	61,54	68,90	49,84
Percentage ..	72.98	33.86	65.87	54.49

**Note.*—The percentage for an industry is worked out in respect of total for that industry in Maharashtra.

TRADE

Bombay acquired considerable importance as an entrepot centre of trade only in the beginning of this century. At the close of the 17th century, indeed, one writer had declared it impossible "that Bombay from its situation could ever become a place of trade notwithstanding the great attention paid to it by the English Government." Nevertheless Bombay grew very rapidly since the close of the last century and the beginning of this century on account of its being a wonderful natural harbour. It was also in close touch with a population which during the dim and prehistoric ages had developed the science of ocean navigation long before its rudiments were known in Europe.

Under the Portuguese rule the trade of Bombay was infinitesimal and was confined to dried fish and cocoanuts to neighbouring coast towns; and in truth the anxiety of the East India Company to secure the island arose not so much from the idea of converting it into a flourishing mart as from the desire to possess a secure position on the Western coast. According to Mr. Fryer the trade of Bombay was very small in 1675 which advanced appreciably under the rule of Aungier, the Governor. In the 17th century Bombay was economically so unpromising a possession that in 1668 King Charles II of England transferred it to the East India Company at an annual rate of only £ 10. King Charles had received it as a dowry at his marriage with the Portuguese Princess,

Catherine of Braganza in 1661. The East India Company shifted the headquarters of its trade from Surat to Bombay in 1687. This was however followed by a great depression between 1690 and 1710.

In 1757 Mr. Ives described the town as the most flourishing in the World, " The grand store-house of all Arabian and Persian commerce ", while another writer speaks of the sale of woollens and other European goods to the extent of the lakhs a year. Mr. Forbes described the merchants of Bombay as trading with all the principal seaports, inland, cities of India, and as extending their commerce to the Persian and Arabian Gulfs, the coasts of Africa, Malacca and China and the eastern islands. At the opening of the 19th century, Bombay appeared to Milburn " to bid fair to be the most durable of all the English possessions in India ". Basra, Muscat, Ormuz and other ports in the Persian Gulf furnished Bombay with pearls, raw silk, wool, dates, dried fruits, rose-water and scents; Arabia supplied it with coffee, gold, drugs and honey; while a number of ships annually freighted with cotton and bullion for China returned laden with tea, sugar, porcelain, wrought silk, nankins, and a variety of useful and ornamental articles. The exports from Bombay consisted of English woollens, copper, iron, lead, Surat goods, pepper and cotton to Madras, Bengal, China and Gulf areas.

Bombay could not herself furnish any considerable article of export or even food sufficient for her own people; but every European and Asiatic commodity was procurable within her limits. Mr. Hamilton remarked that Bombay was the very best mart for guns, drugs, Mocha coffee, cornelians, agates and Surat fabrics; and besides being the chief emporium for the goods of Persia, Arabia and western India, she possessed a larger trade with England than any other Presidency.

Foreign Trade : Bombay figures in the writings of ancient travellers as a part on the Thane coast which once played a leading part in the foreign trade of western India. It was however in recent times that it acquired considerable importance as a centre of trade. Dr. Fryer recorded that the trade of Bombay in 1675 was very small. Under the rule of Aungier an appreciable advance was made. In 1670 the local trade was confined to bullion. After about four years trade in cloth, serges, lead, copper, red lead, iron and ivory was started with England. The exports from Bombay included cloth, *baftas, dungaris, porcolloes,* pepper, drugs, etc. General Aungier realised enormous potentialities of the trade of Bombay and he did his level best to advance the trade of this city.

Between 1664 and 1668 Bombay gradually developed as a chief centre of English commerce with western India and considerable impulse to trade was afforded by the decision of the Company in 1687 to transfer the headquarters of Company's trade from Surat to Bombay. Between

1690 and 1710 a period of great depression set in owing to the rivalry between the London and the English East India Companies, and trade languished greatly.

In 1753 Bombay had become the centre of trade between western and upper India and between Malabar coast, the Persian Gulf and Red Sea.

The trade between Bombay and the other ports of the Thana coast between 1660 and 1800 was chiefly in grain, vegetables, fruits, fowls, and mutton for the Bombay market and in teak from Vasai. The trade was much hampered by taxes imposed in Bombay while a regular barrier of custom houses—English, Portuguese and Maratha and the disturbed condition in the Deccan prevented any considerable inland trade. By the close of the third decade of the 18th century Bombay's commerce was in a most flourishing condition. Forbes described the port between 1766 and 1770 as one of the finest marts in India, employing a large number of vessels. The cotton trade with China commenced about 1770. Basra, Muscat, Ormuz and other ports in Persian Gulf furnished it with pearls, raw silk, wool, gold, drugs etc., while from Java, Malacca and Sumatra, Bombay vessels brought spices, perfumes, sugar etc.

The intercourse between India and America was then in infancy and the Portuguese trade with Bombay from Goa, Daman and Lisbon was trifling.

From 1795 a steady increase was noticeable in the external commerce of Bombay. The total value of Bombay trade (foreign and coasting) amounted to Rs. 406 lakhs in 1801-02. Except the decade ending 1819-20 during which the average showed a decrease, the average value of trade always showed a rising trend in the subsequent decades. The average value in 1829-30, was Rs. 566 lakhs. It rose to Rs. 26,20 lakhs in 1859-60 and Rs. 8,506 in 1889-90.

Upto the year 1869-70 the import trade of Bombay was confined chiefly to the United Kingdom, China and the Persian Gulf. Owing to the abolition of the East India Company's monopoly and the opening of the Suez Canal (1869), the current of trade from 1870 showed a disposition to return gradually to the channels used before the discovery of the passage round the Cape of Good Hope. Subsequent to 1870 other European countries commenced to acquire an increasing share. The following figures, in lakhs, show a rising trend of exports and imports of Bombay since 1800-01:—

	Decade				
	1800-01 to 1809-10	1830-31 to 1839-40	1860-61 to 1869-70	1890-91 to 1900-01	1900-01 to 1906-07
Exports ..	67	210	2391	2748	3308
Imports ..	29	170	1162	2123	2351

The imports to Bombay consisted of cotton piece-goods, silk manufactures, sugar, machinery, metals, oil, dyes, liquors, coal, cotton yarn, kerosene, etc. The chief contributor to the import trade in cotton piece-goods was the United Kingdom.

In the decade ending 1850, the value of imported cotton piece-goods was nearly 88 lakhs which rose to 723 lakhs in decade ending 1890. During 1901-07 the total value of the trade was nearly 779 lakhs. Other countries which exported cotton piece-goods were Austria, Hungary, France, Belgium, Germany and America, the last one started its export during the decade ending 1890. Until 1870 the silk manufacture were chiefly from China. However after that United Kingdom, France and Italy started to send silk piece-goods. During 10 years ending 1870 imports from England amounted to one lakh and increased to ten lakhs during the period commencing 1900-01. Among Asiatic countries Egypt commenced to send silk piece-goods to Bombay before 1861-70, while Japan joined in 1891-1900. The United Kingdom had monopoly of machinery and mill requirements. The imports from Germany and America were drifting. As regards import of woollen piece-goods, the United Kingdom started exporting at the opening of the 19th century. The other countries which had a share in this were Germany, the chief competitor, Belgium, France, Egypt and Persia. Bombay commenced to import sugar from United Kingdom at the opening of the 19th century. The import from Mauritius was a noticeable phenomenon in the sugar trade. In 1895-96, the German sugar was put on the market in large quantities. Along with China, Jawa had also a small share in the sugar import. In the metal imports also the United Kingdom had a bulk share and had done so since the opening of the 19th century. Bombay received imports of metals from other countries like Austria, France, Norway, Sweden and Germany. Russia was the first to export kerosene to Bombay in 1880. Subsequently America started exporting oil. The import of Sumatra oil became an established fact in about 1900, while in 1903-04, a new feature was introduced into trade by the import of Burma oil. There was no import of coal during the first half of the 19th century. But from 1860 onwards with expansion of railway, steam navigation and telegraphs the trade assumed considerable proportion. Upto 1890 United Kingdom and America were the only partners in exporting coal to Bombay. However, since 1890 Japan entered in this trade.

Bombay was the sole outlet for the cotton produce of Gujarat, the Deccan and the Central Provinces and her export trade was confined for the most part to cotton, wheat and seeds. About 1825 the exports from Bombay became considerable. The heyday of Bombay's exportation of cotton coincided with the outbreak of American war (1861-65). Upto 1890 the United Kingdom was the chief recipient of Indian raw

cotton. However from 1891 onwards Japan, Austria, Hungary, France, Italy started importing cotton from India. The export trade of wheat commenced in 1851 and was insignificant until 1871. The United Kingdom, Belgium, France, Germany, Spain shared in this trade. The first shipment of oilseeds occurred in the decade ending 1849-50 and were despatched to the United Kingdom. Austria, United Kingdom, Germany, Holland and France were th emajor countries importing Indian oilseeds. Before the improvements in mill machinery in Great Britain, cotton piece-goods were exported to England in considerable quantities. During the earlier years of the 19th century England, France, Portugal, Arabia, Persia absorbed large quantities of export trade.

In 1854, the first cotton mill was established in Bombay. During 1865 there were 10 mills in Bombay which increased to 85 by the end of 1907. The countries like Arabia, Persian Gulf, Africa absorbed products of the Bombay mills. The exports of cotton goods from Bombay therefore showed a steady tendency to expand in the last decade of 19th century in spite of competition from Japan.

Coasting Trade : The coasting trade of Bombay fluctuated in accordance with increase or decrease of imports and with the demands from foreign countries. The principal articles of trade were raw cotton collected from Gujarat and Cutch; cotton piece-goods from Gujarat, Bengal and Goa; rice from Goa, Gujarat; and sugar from Bengal and other districts of the Presidency.

The coasting trade maintained steady progress except the temporary depression of 1811-12 due to unfavourable conditions in China and great scarcity in Cutch and Gujarat. In 1827, the commercial position in Bombay was far from favourable. Between 1835 and 1850 the Bombay Government strived hard to enlarge coasting and foreign trade by removing restrictions such as inland cotton and sugar duties. During 1854-64, Bombay enjoyed an unusual amount of prosperity as both foreign and coasting trade largely increased. This was due to high prices received for cotton during the American War. The following figures of coasting imports and exports show the substantial increase since 1880-81 :—

(Rs. in lakhs)

	1880-81	1900-01	1905-06
Imports	534	1088	1067
Exports—			
Indian	113	231	355
Foreign	284	298	307

Rail-borne Trade : The then Great Indian Peninsula Railway and the Bombay, Baroda and Central India Railway carried a large traffic to and from Bombay serving practically the entire country. The GIP Railway which was opened for traffic for 1258 miles in 1870 booked 2,12,905 tons of goods to stations in Bombay city and Island and carried 1,26,861 tons of goods from stations within the same area. The bulk of trade was in cotton and grain brought from the Deccan and Central Provinces by the GIP Railway and from Gujarat by the BB&CI Railway. In the subsequent decade the rail-borne trade increased in proportion to the increase in foreign trade of the port. The following figures show the increased rail-borne trade of Bombay island since 1888-89 for a few years :—

(Rs. in '000)

Year	Imports		Exports	
	External	Internal	External	Internal
1888-89 ..	18,16,68	10,71,71	6,13,86	6,56,39
1898-99 ..	18,75,86	13,64,89	10,60,57	8,88,15
1907-08 ..	25,95,87	17,60,55	21,29,62	13,89,09

The chief imports by the BB&CI Railway were raw cotton, grains, pulses and oilseeds; while chief items of exports were cotton piece-goods, sugar and metals. The GIP Railway also carried the same items of exports and imports from and to Bombay.

Local Trade : Even after possession of the island by the East India Company the local trade of Bombay was comparatively small. The factors responsible for this state of affairs were lack of capital, external warfare, epidemic diseases, low strength of traders, etc. The retail trade in rice and grain was in the hands of persons known as the *kacharas* appointed by the Company's Government. The unfair practices by the *kacharas*, however resulted into appointment of a clerk of the market in 1741 to undertake retail sale of grain.

Except grain trade, other traders were free from Government interference in the 18th century and cultivators, fishermen, vegetable growers were encouraged to bring their produce in the Bombay market. By the end of 18th century a considerable number of Parsis joined existing trading community of Banias and Musalmans. An English firm, *viz.*, Forbes and Company was opened in 1767 which transacted mercantile business. According to Mrs. Elwood (1830) the retail trade of Bombay was almost wholly in the hands of the Jew community. Bombay in 1847 contained 201 *dal* and rice dealers, 152 confectioners, 491 cloth merchants

203 dealers in brass and copper, 459 liquor dealers, 736 goldsmiths, 253 tobacconists and 439 pawn brokers.

As per 1901 census returns more than $\frac{1}{10}$ urban population was engaged in trade of one kind or another. The leading traders were Bhatias, Banias, Jains, Bohras, Memons, Parsis, Jews and Europeans. Marathas dealt largely in fruit and vegetables, while the Kolis monopolised fish supply. Hawkers numbered nearly 2,000 and earned more in the mango season. Retail shopkeepers bought their stock from the wholesalers at Masjid Bandar (grocery), Mulji Jetha Market (cloth and hosiery), Pydhoni (copper), Ganeshwadi (drugs), Mandvi (foodgrains, sugar, *ghi*) Shaikh Memon Street (silver and gold) and Fort (opium and machinery).

The seaborne trade from the Bombay Harbour increased progressively during the post-Independence period. The cargo handled at the port was about 5.18 million tonnes which comprised 3.26 million tonnes of imports and 1.92 million tonnes of exports. The following statistics show the trend of imports and exports handled at the Bombay port during the planning period :—

(Figures in million tonnes)

Year	Imports	Exports	Total
1950-51 ..	.. 5.27	1.73	7.00
1955-56 ..	.. 6.81	3.66	10.47
1960-61 ..	.. 10.79	3.93	14.72
1965-66 ..	.. 12.97	5.14	18.11
1970-71 ..	.. 10.86	3.54	14.40
1971-72 ..	.. 12.43	3.70	16.13

A salient feature of the trend in seaborne trade is that the composition of the cargo and its variety have underwent immense change during the post-Independence period. Petroleum, oil and lubricants now constitute about 55 per cent of the total cargo. In keeping with the progress of industrialization in the country and the priorities fixed for the national economy there had been a larger import of industrial machinery, basic metals, basic chemicals, fertilizers, fertilizer raw materials such as rock phosphate, crude sulphur, urea, etc. Foodgrains also constituted an important item of import trade upto 1975 after which the food imports declined due to favourable conditions in the country itself. During the pre-Independence period a number of consumers' goods, even the most petty articles like pins and hair-pins, were imported from the U.K. which ruled over India. Almost all kinds of machinery, tools, equipment

and even screws and bolts were imported from the U.S. The main items of exports from Bombay, at present, are cloth, sugar, tools, industrial accessories, iron and steel goods, oil-cakes, cashew-nuts, etc. In the case of exports also, the composition of the cargo has underwent a formidable change during the last about twenty years. Manufactured articles are progressively taking the place of primary goods. The Government has also undertaken a number of export promotion schemes.

The traffic of Bombay port declined sharply during World War I, despite an increase in the exports during the last two years of the War. The total traffic plummeted from 5.02 million tons in 1913-14 to 4.01 million tons in 1915-16 and stood at 4.15 million tons in 1918-19. Though the declining trend persisted for a short while even after termination of the War in November 1918, the traffic picked up rapidly and the figure for 1919-20 rose to 6.25 million tons, registering a substantial increase over the pre-War level. This increase was maintained till 1929-30 when it reached 6.69 million tons.[1]

The buoyancy of the twenties was, however, succeeded by a decline in international trade as a result of the Great Depression in the early thirties. The Depression affected the foreign trade of Bombay adversely. The volume of trade declined from 6.69 million tons in 1929-30 to 4.69 million tons in 1932-33, and it fluctuated around 5.4 million tons till 1939-40. The fall in exports was more severe than that in imports.

With the outbreak of World War II, the foreign trade of Bombay declined slightly from 5.4 million tons in 1939-40 to 5.1 million tons in 1940-41. However, with the gearing up of the War effort and the revival of industrial activity to meet the War needs, the traffic handled at Bombay port revived to the earlier level of over six million tons from 1941 onwards. The entry of Japan into the World War and her occupation of Burma, virtually closed the Bay of Bengal to shipping. Consequently the country's seaborne trade was diverted to Bombay, Karachi and Cochin. The turnover of foreign trade declined to 5.36 million tonnes in 1946-47.[2] This decline was attributable to the slump in economic activity after the cessation of hostilities of the World War and many other damages due to War.

The volume of trade at the Bombay port increased progressively during the post-Independence period. There has been a tremendous expansion in the world seaborne trade in both volume and value, ever since the launching of planned economic development in 1950-51. The composition of foreign trade has underwent fundamental changes in keeping with the industrial and economic policies of the Government of India.

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[1] Bombay Port Trust, *The Port of Bombay—A Brief History.*

[2] Ibid.

The statistics of imports and exports from the Bombay port in certain selected years since Independence are given below:—

IMPORT AND EXPORT TRAFFIC AT THE BOMBAY PORT SINCE INDEPENDENCE*

(D. W. tonnes in millions)

Year	Imports	Exports	Total
1947-48	4.76	1.71	6.47
1950-51	5.27	1.73	7.00
1955-56	6.81	3.66	10.47
1960-61	10.79	3.93	14.72
1965-66	12.97	5.14	18.11
1966-67	13.23	5.04	18.27
1970-71	10.86	3.54	14.40
1971-72	12.43	3.70	16.13

The import of petroleum, oil and lubricants increased considerably since 1954-55, and they now constitute, on an average, about 55 per cent of the total traffic of the port. The other items which have contributed to the increase in traffic consist of iron, steel and machinery for plan projects, foodgrains, fertilizer raw materials (rock phosphate, crude sulphur, urea, etc.) and chemicals on the import side. The main items of export are oil-cakes, iron scrap and dross, sugar, iron and steel, and manganese ore. The increase in imports in 1965-66 and 1966-67 might also be due to the appreciable rise in the import of military hardware on account of the experience of Indo-Pak War of 1965.

The decline after 1966-67 was mainly due to diversion of some traffic of petroleum, oil and lubricants consequent upon the setting up of oil refineries elsewhere in India; decline in iron and steel imports due to growth of indigenous production, reduction in imports of foodgrains and the virtual disappearance of the iron ore traffic as a result of the development of other ports for ore export.

The rail-borne import and export trade from Bombay is immensely large. Lakhs of tonnes of goods are imported and exported by the Central Railway as also the Western Railway to and from Bombay. The turnover of goods traffic on the former is much larger than on the latter. This is attributable to the fact that a larger part of the country comprising the southern, central, eastern and north-eastern regions of

* Bombay Port Trust, *The Port of Bombay—A Brief History.*

India, are connected with the Central Railway than with the Western Railway.

The import and export goods traffic on the Central Railway in 1975-76 and 1976-77 and that on the Western Railway in 1974-75 are given below:—

INWARD AND OUTWARD GOODS TRAFFIC TO AND FROM BOMBAY BY RAILWAYS[1]

(Figures in tonnes)

Central Railway				Western Railway	
Imports		Exports		1974-75	
1975-76	1976-77	1975-76	1976-77	Imports	Exports
30,30,351	42,82,037	31,16,614	37,33,260	12,51,053	9,14,559

CHAMBERS OF COMMERCE

Chambers of commerce played an important role in the development of trade and commerce, promotion of exports and protection of interests of the trading community in Bombay.

The history of chambers of commerce in Bombay can be traced back to 22nd September 1836 when the Bombay Chamber of Commerce was established.

The important chambers of commerce in Bombay, are Bombay Chamber of Commerce and Industry, Indian Chamber of Commerce and Industry, Indo-American Chamber of Commerce, Maharashtra Chamber of Commerce, Western India Chamber of Commerce, Bharat Merchants' Chamber, Hindustan Chamber of Commerce, Indo-German Chamber of Commerce, Iron, Steel and Hardware Merchants' Chamber of India, and Indian Merchants' Chamber.[2]

By and large, a chamber of commerce functions as a spokesman of industry, trade and commerce. The Indo-foreign Chambers of Commerce in Bombay have a special role to perform. They promote economic co-operation between India and the respective country. They also promote foreign collaboration in industry and trade by negotiating collaboration agreements between interested parties and Government authorities.

[1] Information received from the Central Railway and the Western Railway.

[2] For details refer to Chapter 6—Trade and Commerce.

BANKING

The history* of banking in the city can be traced to 1720 in which year a bank was established in Bombay with the assistance of the East India Company. This bank which was under management of the Bombay Government was however closed in 1778 due to accumulation of debts. During the 19th century banking in Bombay was carried on by about 100 Hindu shroffs until the establishment of the Bank of Bombay. The Bank of Bombay was opened in 1840. Besides usual banking business, it enjoyed the privilege of issuing bank notes upto 1860. In 1842, the Bank of Western India was established at Bombay in order to facilitate the conduct of exchange and other legitimate banking business from which the Bank of Bombay was excluded by its charter. It had its branches in Calcutta, Colombo, Hongkong and Singapore. A third banking company known as the Commercial Bank of India was formed in 1845 mainly on the suggestion of Indian merchants. It was followed by the establishment of the branches of the Oriental Bank of London, the North-Western Bank of India and the London and Eastern Bank. Many branches were opened during the subsequent period. The year 1863-64 was one of great prosperity, and enormous wealth poured into the city in consequence of the cutting off of the American Cotton supply. This sudden increase of wealth engendered the wildest speculation and resulted in 1863 and 1864 in the formation of numerous banking and financial associations. The old Bank of Bombay was reconstructed in 1868.

Banking made steady progress upto 1890, but during the next 15 years there was stagnation caused by bad seasons and outbreak of plague. Some banks preferred closure to bad survival. In 1908, Bombay contained three local banks, two branches of Indian banks, three of London banks and four other banks. The three local banks of importance were the Bank of Bombay (1868), the Bank of India (1906) and the Indian Specie Bank (1906).

The mercantile and moneyed classes in the city encouraged the growth of commission agents and industrial houses. Thus availability of capital and an entrepreneurial class gave phillip to industrialisation in Bombay.

Krishna Arjunji Nathji, a Gujarati Shroff, was the first financier of the Bombay administration of the East India Company. He lent finances to the company for the first time in November 1759.

In December 1976 there were 795 banking offices in Bombay, while the corresponding number for Maharashtra was 3,370. The commercial importance of Bombay is revealed by the statistics of banking. In December 1975 there were 729 banking offices which had deposits worth Rs. 2,17,078 lakhs and had advanced Rs. 2,03,666 lakhs. The total bank

* For details refer to the *Gazetteer of Bombay City and Island*, Vol. I, 1909, pp. 288-93.

credit issued by the banks in Bombay stood at Rs. 1,56,95,072 lakhs in December 1975 which was granted to 1,32,252 account holders.

Of the 14 nationalised banks, the head offices of four banks, *viz.*, the Central Bank of India (established in 1911), the Bank of India (established in 1906), the Union Bank of India (1919) and the Dena Bank (1938) are located in Bombay. Besides the Reserve Bank of India which is the Central Bank of India has its head office in Bombay. Besides the usual functions of the bank as a central bank, the Reserve Bank of India has been playing a vital role in direction and control of economic development of the country.

The State Bank of India which has also its head office in Bombay is functioning as an instrument of government policy of economic development.

Besides the banks in the public sector, there are a number of commercial banks in the private sector including the foreign banks and in the co-operative sector. They include the Maharashtra State Co-operative Bank and the regional bank branches of the giant banks in the United Kingdom, the U.S.A., Canada, France, Japan, Hongkong, West Germany and many other countries in the world. A detailed account of Banking is given in Chapter 6 above.

INVESTMENT TRUSTS AND FINANCIAL INSTITUTIONS

Prior to Independence bank credit was available mainly to commerce and financial activity only. Commerce and finance by themselves claimed about 51 per cent of the bank credit while only 30 per cent went to the industrial sector by the end of 1949. The percentage of bank credit to industries showed some improvement after 1949. But with the rapid progress in industrialisation in the private sector, the total requirements could not be met by the banks alone. The problem was more acute in the case of long term capital. The scheduled banks followed a policy of caution. The Government therefore felt it imperative to launch a series of stabilised financial institutions to meet the needs of industry. In 1948 came the Industrial Finance Corporation, and it was followed by the State Financial Corporation consequent on the State Financial Corporation Act of 1951. While the IFC was designed to serve the large-scale industry, the SFC is to take care of needs of medium and small-scale industries. The National Industrial Development Corporation was formed in 1954 to undertake the responsibilities of encouraging small-scale industries by providing finance for machinery, etc. The Industrial Credit and Investment Corporation of India (I.C.I.C.I.) was founded in 1955 largely due to the suggestion of the World Bank. This was followed by the Refinance Corporation in 1958 which provided refinance facilities to banks to enable them to provide finance to industries. The

establishment of the Industrial Development Bank of India (I.D.B.I.) in 1964 was a very important event in the field of finance to industries. It plays a leadership role in expansion of industries and evaluation of industrial projects.

Prior to the establishment of the I.D.B.I. and the I.C.I.C.I. entrepreneurs used to get funds only on the basis of their standing and prestige. There was practically no system of project evaluation in India. The I.D.B.I. and the I.C.I.C.I. introduced a tradition of project evaluation before financial lending. They undertake various functions such as discussion of project ideas, feasibility study, search for entrepreneural talents, and provision of technical and financial assistance on a consortium basis.

Besides, the Maharashtra State Finance Corporation (M.S.F.C.) which has celebrated its silver jubilee recently has been providing industrial finance to small and medium State industries.

TRANSPORT FACILITIES

Bombay is most advantageously situated as regards railway communications. Three trunk routes emanate from Bombay which traverse through the length and breadth of the entire country. Thus, Bombay is connected with practically every State in the Indian Union and affords railway communication with almost all industrial and commercial cities.

Important national highways emanating from Bombay are also connected by a number of State Highways, their points of junctions being either on the outskirts of Bombay or a little beyond.*

The Bombay port is the keystone of the prosperity of Bombay City. It is one of the eight major Ports in India, and provides all the facilities as per international standards.

Apart from being one of the finest natural harbours, Bombay's central position on the west coast of India, its advantageous position with respect to the Suez Canal and Europe and its accessibility to a vast hinterland by three broad gauge railways running north, east and south and a network of national and state highways have made Bombay the main distributing entrepot of the overseas trade for the western and central regions of India. " Bombay's claim to be the premier port of India is based on the facts that it is the leading oil port with over 50 per cent of the foreign traffic, the leading general cargo port with about 33 per cent of the foreign traffic, the leading port for overseas passenger traffic and the main base for the Indian Navy. It bore the brunt of the heavy foodgrain imports of the last decade, handling as much as 35 per cent of

* For details refer to Chapter 7 in this volume.

the imports in the peak period. Bombay's share of the total sea-borne traffic of the country, foreign and coastal, in 1970-71 was over 23 per cent, the highest for any port."

The Bombay Port Trust, which celebrated its first Centenary on 26th June 1973,* has contributed immensely to the growth of Bombay as also to the national economy. It undertook a good many schemes for the improvement of the port, and has many schemes of further modernisation and expansion. It has also plans for constructing a satellite port at Nhava-Sheva across the harbour.

Infrastructure in the form of an excellent transport system has immensely contributed to the economic development of Bombay. It is therefore of great interest to give a brief history of the growth of the transport system of Bombay. As a matter of fact the history of Indian Railways starts from the establishment of the first railway line from Bombay to Thane. The twenty-one miles (33.60 km) of rail from Bombay to Thane was opened for traffic on April 16th, 1853 which was a day of rejoicing in the city. The progress of the railway was steadily sustained in the years to follow and Bombay started wielding direct influence in the regions far beyond her own limits. The extension to Kalyan was opened on May 1, 1854. The new year day of 1861 witnessed the opening of the line to Kasara at the foot of the Thal Ghat. The opening of the Bhor Ghat incline took place on the 21st April 1863, amid great rejoicing in the presence of the Governor, Sir Bartle Frere. The Thal Ghat incline was opened in January 1865. The three main railway termini at Nagpur, Jabalpur and Raichur were reached on 20th February 1867, 8th March 1870 and 1st May 1871, respectively.

The two main lines of the G.I.P. Railway from Bombay conferred incalculable benefits upon the country. The immediate benefits were manifested by the projection of fresh railways even prior to completion of the two routes from Bombay. The work of constructing the Bombay, Baroda and Central India Railway (B.B.&C.I.) was commenced in May 1856, and the first section from Amroli to Ankaleshwar was opened in February 1860. The railway communication between Bulsar and Baroda was established by the end of 1861. This line was connected to Bombay in November 1864, when the main line to Ahmedabad may be said to have been completed. The whole line from Bombay (Colaba) to Wadhvan was opened throughout in 1872. Thorough communication was established from Bombay to Calcutta in 1870 and to Madras in 1871 which led to a large increase in both goods and passenger traffic. Goods transport steadily expanded from 1880 owing in a large measure to the rapid growth of the factories in Bombay on western model. The quantity of cotton brought to Bombay by the railway trebled between 1880 and 1908.

* Bombay Port Trust, *The Port of Bombay*.

The Bombay Port Trust railway which was first proposed in 1894 was constructed in 1915; with a length of about 12 km. from Wadala junction to Ballard Pier. It has had a total length of about 175 km. of main lines and sidings. This railway has facilitated the increasing business of the Bombay Port by affording greater facilities for the shipment of produce. It helped transformation of methods of handling cotton. Huge cotton depots covering nearly 50 hectares of land were erected; to the east of the cotton depots are the grain depots, and further north the manganese ore and coal depots. Huge oil installations were also set up in the vicinity of the Port Trust railway in three groups: the liquid fuel and lubricating oil depots at Malet Bandar, the kerosene oil installations at Sewri, and the petrol installations further north at Wadala, all of them being connected by pipelines with discharge berths on the Bombay Harbour Walls and at Pir Pau. This establishment encouraged a tremendous growth of oil trade of Bombay in particular and of Western India in general, which over a decade shot up from a mere half million gallons to about 19 million gallons.

The opening of the Suez Canal in 1869 effected a complete revolution in the trade and consequently in the industrial growth of Bombay. This reduced the distance from Bombay to England to almost half. A direct submarine cable was laid from Suez to Bombay a year later, in connection with the cable from Falmouth to Gibraltar.

All these communication facilities conferred on Bombay the status and proud position as the Gateway of India. The improvement in this infrastructure led to an enormous increase in cotton trade in the beginning and in all-round trade in almost all commodities in later years.

The construction of the Colaba Causeway in 1838 was an important landmark in the growth of Bombay. This was preceded by construction of a good carriage road up the Bhor Ghat during the regimes of Mountstuart Elphinstone and Sir John Malcolm which connected Bombay to the Deccan. This Ghat was opened on 10th November 1830.

The period 1838 to 1872 was perhaps a very important period in the economic history of Bombay because during these years the old commercial town was transformed into a prosperous commercial and industrial centre. The development of transport facilities was an important contributing factor. The Mahim Causeway constructed in 1845 provided a second link between the city island and Salsette, the first one being the Sion Causeway constructed in January 1805.

All these factors have made Bombay the main distributing entrepot of the overseas trade for the western and central regions of India. Bombay's share of the total sea-borne traffic of the country, foreign and coastal, in 1970-71, was over 23 per cent, the highest for any port.

MARINE RESOURCES

The marine resources of Bombay are very rich from ancient times. The *Mahikawati-Bakhar* and *Bombay City Gazetteer* of 1909 refer to the prosperity of the Sonkolis (fishermen) of Bombay when king Bimbadev established his rule at Mahim (Mahikawati) in A.D. 1300 It was in 1766, that the East India Company imposed a tax[1] on fishermen after realising the prosperity of the occupation. The area suitable for fishing extends over 200 kilometres to the west of Bombay. It has largely muddy and sandy bed which is conducive to fast reproduction of fish.

The production of fish in the Bombay sea waters has always been on the increase. The statistics of production of fish at Bombay are given below:—

PRODUCTION OF FISH IN BOMBAY SEA WATERS, 1971-76

1971-72	1972-73	1973-74	1974-75	1975-76
63,642	75,448	73,836	94,239	1,24,358

The fisheries department estimated that the gross value of the turnover of fish at Bombay was to the tune of Rs. 36 crores in 1976. A good amount of fish is exported from Bombay to the Middle East Countries.

Salt is another marine wealth available at Bombay. The salt pans at Wadala, Bhandup and Chembur are the main centres of salt production in Bombay. The production of salt has however dwindled due to the expansive reclamation of salt pan areas for residential and other urban development purposes.

By far the most important of the marine wealth of Bombay is now traced at what is known as the ' Bombay High '. It is estimated that the oil wells at Bombay High may yield about 100 million tonnes of petroleum. A detailed account of the Bombay High project is given below.

BOMBAY HIGH[2]

The oil exploration project known as the ' Bombay High ' is one of the most important landmarks in the development for the national economy. The saga of Bombay High is an interesting tale of the Indian offshore effort and a prosperous future of the Indian economy. The first step in offshore oil exploration in India was taken by the Oil and Natural Gas

[1] This tax was withdrawn subsequently.

[2] The account is based on pamphlet *Samudra Manthan*, 1981, published by the Oil and Natural Gas Commission.

Commission (ONGC) when it conducted an experimental seismic survey in 1963. From 1964 to 1967 regional reconnaissance was undertaken with the help of a Soviet seismic ship which delineated the Bombay High structure, besides others in the Cambay basin. This led to detailed seismic surveys of the Bombay High and adjoining areas. The ONGC which was entrusted with the exploration work obtained a sophisticated jack-up rig of the Mercury class from Japan, *viz.*, the Sagar Samrat. The drilling operation by Sagar Samrat commenced on January 31, 1974. Three weeks later, on February 19, 1974, oil was discovered. Further drilling hinted at the presence of gas bearing sand at about 1160 m. depth and an oil-bearing lime stone reservoir at about 1300 m. depth. This accentuated ONGC's oil exploration and production programme. In order to explore the 3,80,000 sq. km. of the Indian continental shelf, the ONGC purchased in July 1975 its own seismic survey vessel, *viz.*, *Anwekshak*, which is equipped with a vast range of sophisticated geophysical equipment, a sea gravity meter, a magnetometer, computers and other latest equipment. It is the first of its kind in India and it can navigate and operate in any kind of weather without dependence on shore-based station. The *Anwekshak* has made several significant discoveries including the South Bassein gas-field and several oil-fields.

Till March 1981, ONGC had drilled 91 offshore exploratory and assessment wells in this region, of which only 35 proved to be dry. Today it owns three Jack-up rigs, *viz.*, Sagar Samrat, Sagar Vikas and Sagar Pragati, with two more on order.

The ONGC has been operating in the Bombay High project with speed and tangible results. The phenomenal growth of this project from 4,300 BPD to 1,50,000 BPD in less than five years is a significant achievement for the national economy. Bombay High has wrought its marine miracle of today (May 1981) through five time-bound and result-oriented phases.

The first phase of the project started with the beginning of installation work in December 1975. The project involved installation of a well-*cum*-production platform and other facilities. The target of 40,000 BPD of oil was reached in January 1977. The first barrel of oil was obtained on May 21, 1976.

The second phase was commenced in early 1976 and the facilities were installed in April 1977. The targetted rate of production, *viz.*, 80,000 BPD was achieved in January 1978.

Exclusive oil and gas submarine trunk pipelines (260 km. in length) were laid during the third phase from Bombay High to Uran and further on to Trombay where refineries, fertilizer and power plants are located. This enabled the authorities to continue oil production perennially, to maintain uninterrupted flow of oil to the refineries and to utilise the

associated gas on shore. This phase was completed in July 1978, and production touched the 1,00,000 BPD level by the end of 1978.

Boosting the production capacity of the northern part of Bombay High from 1,00,000 BPD to 1,80,000 BPD and building a giant process platform figured prominently in the fourth phase. The platform provides gas compression facilities and can receive hydrocarbons from 19 oil wells and well-*cum*-production platforms. The platform known as BHN is one of the most sophisticated of its type in the oil producing countries in the world. Initiation of production from the south and central sections of Bombay High is a part of this phase. Two platforms were commissioned in this Zone, while a gas fractionation plant with liquid petroleum gas extraction facilities of 1,98,000 tonnes per annum is in the offing. The oil production rate of 1,40,000 BPD which can be regarded as most spectacular was achieved in January 1981.

The oil and gas produced offshore is transported to the terminal at Uran for stabilisation and delivery to refineries as also for extraction of Liquid Petroleum Gas (LPG) and other constituents before sending it on to the fertilizer and petrochemical plants.

The ONGC has future ambitious plans on the anvil, slated for timely execution. The spectacular plans envisage stepping up of crude production from Bombay High from 1,40,000 to 2,40,000 BPD by the middle of 1982. The Bombay High project exhibits spectacular technological advancement and self-reliance in this vital sector of the national economy.

The distinguishing feature of the Bombay High oil is that its deposits are in lime-stone rocks. The quality and yield of this oil are very much superior to the oil deposits in sand-stone rocks. It is comparable in quality to the oil in Arab countries. The crude-oil at Bombay High yields petroleum four to five times of the one explored at Ankaleshwar. The gas will provide a cheaper fuel for domestic consumption and heavy industries. In fact availability of this gas has prompted the Government to establish a giant fertilizer plant at Thal-Wayshet near Bombay.

BOMBAY METROPOLITAN REGIONAL DEVELOPMENT PLAN, 1970-91

The momentous and uninterrupted growth of Greater Bombay made it necessary to plan the development of the Metropolitan region by sketching on a sufficiently large regional canvas. The accumulated problems of the city including the deficits in social and economic infrastructure made it imperative on the part of the authorities to find out locations for providing these facilities. The geography of the island imposes severe limitations on the optimum growth of the city. The uninterrupted growth of the city and the multiplying population are by themselves a major

problem. As said by the planning authorities, " Bombay the beautiful is no more beautiful. Many parts of it are not even tolerably clean and healthy. Housing deficits are everwidening and slums, like a cancerous growth, can be seen anywhere and everywhere. Adequate water is a serious problem; transportation is threatening to break down and serious law and order situations develop on the slightest provocation.... In short, the metropolis is slowly falling to pieces and concerted action is necessary to salvage the situation. No doubt, it offers job opportunities to many and a bright future to a dashing entrepreneur. Similarly its contribution to the national income is significant and it is also the biggest centre of specialised services and expertise. But the deterioration in the physical environments in the city has been so great that it seriously jeopardises the healthy growth of these metropolitan functions and in turn threatens the very existence of the city."*

Need for a Regional Plan : The Bombay Municipal Corporation had prepared a Development Plan for Greater Bombay in 1964 which received Government sanction in February 1967. This plan was confined mainly to the problems of Greater Bombay. Concurrently the Government was thinking that a plan continued to the civic limits of Bombay might not be adequate as a full solution to the complex problems of the city. The Government therefore appointed a committee under the Chairmanship of Prof. D. R. Gadgil, a renowned economist and the then Director of Gokhale Institute of Economics and Politics, in March 1965 to formulate broad principles of regional planning for Bombay and Pune metropolitan regions. As a sequel to the Development Plan prepared by the Bombay Municipal Corporation, the Government notified the Bombay Metropolitan Region, in June 1967, and delimited the area in the region. The Government also appointed a Regional Planning Board in July 1967 for preparing a Regional Plan for the Bombay Metropolitan Region. The enactment of the Maharashtra Regional and Town Planning Act of 1966 which aimed at enabling the Government in the preparation and implementation of regional plans on a statutory basis was brought into force from January 1967. In accordance with the provisions of this Act, the Regional Planning Board had been constructed as a multi-disciplinary team representing various experts and interests.

The pressing problems of Bombay and certain areas round about received further attention of the Government and the necessity was increasingly felt for forming these areas into a Bombay Metropolitan Region and for setting up an authority for the purpose of planning rapid development of these areas, in which several local authorities were separately dealing with such matters within their jurisdiction. Accordingly the Bombay Metropolitan Region Development Authority was

* Bombay Metropolitan Regional Planning Board, *Regional Plan for Bombay Metropolitan Region* (1970-91), Vol. I.

established under the Bombay Metropolitan Region Development Authority Act of 1974,[1] for the purpose of planning, co-ordinating and supervising the proper, orderly and rapid development of the areas in that Region and of executing plans, projects and schemes for such development, and to provide for matters connected therewith.

The main object of the Authority (to be called B.M.R.D.A. hereafter) is to secure the development of the Bombay Metropolitan Region according to the Regional Plan. It is charged with the function of review of any physical, financial and economical plan or any scheme of development in the Region. It formulates and sanctions schemes for the development of the Region, and executes them on the directions of the State Government. It advises the Government on matters pertaining to the development of the Region and can participate in inter-regional development projects. The B.M.R.D.A. has not only to supervise the development projects but it also may finance any schemes. It has to prepare schemes and advise the concerned authorities in formulating and undertaking schemes for development of agriculture, horticulture, floriculture, forestry, dairy development, poultry farming, cattle breeding, fisheries, etc. It is also required to prepare schemes for rehabilitation of persons displaced by certain projects, and to perform other incidental functions by virtue of its being a superior authority for regional planning.

The Bombay Metropolitan region includes Greater Bombay and parts of Thane and Kulaba (Raigad) districts. Originally stretches from the Arabian sea on the West to the eastern limits of Kalyan and Bhivandi talukas and foothills of the Sahyadri in Karjat taluka and the Tansa river in the North to the Patalganga river in the South were proposed. The Metropolitan region was, however, extended subsequently to include besides Greater Bombay, the areas in Thane, Vasai, Bhivandi, Kalyan, Ulhasnagar, Karjat, Khalapur, Panvel, Uran, Pen and Alibag talukas.

The very core of the Regional Plan is that the problems of Greater Bombay cannot be solved by planning only the development of the city itself, but that the proper solution can be sought by shifting some activity and by developing growth centres outside the city.

However the present study is confined to the planning and development of Greater Bombay only. While it might be necessary to study the problems and remedial measures of the peripheral areas around the city, the present study is limited to the analysis of the problems and the prospects of economic development of Greater Bombay. Even the suggestions by the Bombay Metropolitan Regional Development Board are taken here for purposes of analysis in so far as they refer to Greater Bombay.

[1] The Bombay Metropolitan Region Development Authority Act, 1974, was enforced from October 1975.

PLAN PROPOSALS

I. **Demographic and Employment Projections :** The trend of growth of population indicates that Bombay which had a population of 0.81 million in the beginning of this century is likely to have a population of over 15 millions by the turn of this century. The actual growth of population from 1901 to 1981 and the projection for 1991 and 2001 are given in the following table :—

GROWTH AND POPULATION PROJECTIONS FOR GREATER BOMBAY, 1901 TO 2001

Year	Population (millions)	Annual Growth Rate (%)
1901	0.81	....
1911	1.02	2.59
1921	1.24	2.16
1931	1.27	0.24
1941	1.69	3.31
1951	2.97	7.57
1961	4.15	3.97
1971	5.97	4.39
1981	8.24	3.74
1991	11.41	3.17
2001	15.19	3.08

The demographic projections for 1971, 1976 and 1981 made earlier by the BMRPB[1] as also by other bodies such as the Gadgil Committee, the Demographic Training and Research Centre, Chembur, the Regional Transport Survey Unit and Messrs. Binnie and Partners, based on different assumptions, proved to be gross underestimates. The speedy growth of population out-witted all projections. This highly unpredictable and perplexing growth has rendered the job of planners all the more difficult. Perspective planning of the region would therefore have to be elastic so far as population size are concerned.

The labour participation rate[2] which reveals the economic characteristics of population was 42.56 per cent in 1961. The study group of the BMRDA has projected the labour participation rate in 1991 at 64.32 per cent for males, 9.24 per cent for females and 41.26 per cent for the total population of Bombay. These projections are also based on certain assumptions which are not undoubtable.

[1] Bombay Metropolitan Regional Planning Board.

[2] Percentage of the potential working force to the total population.

Projection of Factory Employment : The Bombay metropolitan region accounts for about 70 per cent of the total factory employment of Maharashtra. The trend in factory employment in the past and projections for the future are given below:—

FACTORY EMPLOYMENT

(Figures in thousands)

	Actuals					Estimated	
	1931	1951	1961	1965	1966	1981	1991
1. Greater Bombay ..	178	384	505	572	553	962	1,060
2. Rest of Bombay Metropolitan Region	1·5	11	35	67	71	238	340
Total ..	179.5	395	540	639	624	1,200	1,400

The trend in factory employment given above conspicuously shows that while factory employment rose considerably from 1931 to 1966, the rate of increase was much higher in the rest of the Bombay metropolitan region. Industrial expansion in the Thane-Belapur-Kalwa-Kalyan belt after the sixties is an important factor to be reckoned with. Bombay with all its problems due to concentration of industries is now approaching a stage of saturation. The future growth of industries will therefore have to be diverted to the outskirts. The higher rate of industrialisation and of increase in factory employment in the rest of the metropolitan region than that in Bombay in the future is therefore inevitable.

Projection of Secondary Sector and Tertiary Sector Employment : Since factories constitute only a part of the secondary sector employment, the probable size of the latter can be worked out approximately on the basis of the labour force and the like share of the secondary sector in the occupational pattern. The percentage of the secondary sector employment to total employment was 40.82 in Greater Bombay in 1961. The estimated employment in secondary sector would be 13,94,000 in 1981 and 18,30,000 in 1991 in the metropolitan region.

The rate of growth of tertiary sector employment in Greater Bombay was 4.4 per cent per year between 1960 and 1965 which increased to about 4.7 per cent per annum between 1966 and 1968. The employment in tertiary sector in Bombay, assuming the continuance of the existing trends of development, would be of the order of 19,18,506.

Change in Occupational pattern of Bombay as a result of Planning : The total labour force in Bombay would increase to 40,46,534 in 1991 on the assumption that the population would increase to 98.07 lakhs

and that the existing trends of development are allowed to continue. The employment in secondary sector would be 16,18,400 at the rate of 40 per cent of the labour force. Employment in construction activities which was 2.66 per cent in 1961 may increase to 3 per cent in 1991 and the total employment in construction activity may be to the tune of 1,21,380. The primary sector employment[1] which was about 1.89 per cent in 1961 may decline to about 1 per cent (bringing the total to 40,460) in 1991 because of the progressively larger accent on non-agricultural occupations within the metropolis and gradual reduction in salt pan areas. The remaining 56 per cent of the total labour force would have to be absorbed in the tertiary sector activities inclusive of transport, trade, commerce, offices as well as domestic services, etc. The size of this employment would be 22,62,760 as against 19,18,506 projected on the basis of previous trends. This means that jobs in the tertiary sector would have to grow at a faster rate.

II. **Alternative Patterns for the Future Regional Structure :** After considering the pros and cons the authors of the plan thought that the future pattern of the regional urban development would have to be a combination of the measures as under :—

" (*i*) Immediate internal restructuring (of the metropolis) by the development of alternative commercial centres outside the island city coupled with neighbourhood planning for the suburbs;

(*ii*) New towns around the existing and projected industrial areas, in the region which have been planned as dispersed work centres. Without township facilities around these centres, the existing and the projected dispersal of industrial areas will not only be ineffective but would have bad effects;

(*iii*) Orderly development of the Bombay-Poona Linear corridor which has more or less been a *fait accompli* due to the existing establishment of industrial area in a linear fashion in this corridor. The object here should be to regulate and integrate development; and

(*iv*) A twin metropolis in the Trans-Thane creek and Trans-Harbour area. The immediate emphasis should be on the twin metropolis."[2]

Distribution of Population : The most important question in this respect is about the optimum population size of Bombay. Various committees suggested different sizes of population for the city. The Modak-Mayer Plan of 1948 had suggested ceiling of 31 lakh population for Greater Bombay. The Gadgil Committee, in 1966 suggested a ceiling of 55 lakhs for the whole of Salsette island, while the Development Plan of Greater Bombay (1967) was worked out on the basis of

[1] Employment in agriculture, forestry, fishing, rearing of animals and allied activities.

[2] Bombay Metropolitan Regional Planning Board, *Regional Plan for Bombay Metropolitan Region*, 1970-91, Vol. II, pp. 32-33.

a population of 70 lakhs by 1981. The Planning Board's Social Planning Study Group has recommended that over a period of 25 to 30 years the island city should be decongested by about 15 to 17 lakhs, and that a population ceiling for Greater Bombay would be around 65 lakhs.

The population ceilings suggested by the Modak-Mayer Plan or the Gadgil Committee however appear quite impossible to implement at this stage though it may be desirable. The Metropolitan Region Plan therefore proposed a optimum of 70 lakh population to be achieved by 1991.[1]

The Plan has suggested physical planning at various locations in the region, as also the orderly development of a Metro Centre in Trans-Thane creek and Trans-Harbour area. The Metro Centre lies on both sides of the Panvel creek, the northern portion between the Thane creek and the Parsik hills, commonly known as Trans-Thane creek area, and the rest of the area is Trans-Harbour area comprising Panvel, Uran and Nhava-Sheva. Planned Development of the Kalyan complex, Kolshet-Balkum complex and a number of other townships has also been suggested for reducing the pressure of population and economic activity in Bombay.

III. **Industrial Location Policy :** The heavy concentration of industries in Bombay is a well-known fact and has been discussed elsewhere in this chapter. The growth of industries in the Thane-Belapur-Kolshet-Kalyan belt after the sixties can mainly be attributed to the lack of availability of space in Bombay and to other incidental problems. This growth cannot be regarded decentralization or dispersal of industries in the real sense. In fact this industrial belt is a part of the same enlarged agglomeration which becomes obvious from the continuity of the urban mass, complex cross commutation between all the new centres and Bombay, location of the registered offices of the factories in Bombay, common sources of water, etc. The expansion in these areas is therefore more of a peripheral outgrowth of special expansion than dispersal. At the most this can be regarded as the first step towards decentralisation of industries in Bombay.

It would therefore be necessary to adopt a realistic land use zoning policy for the metropolitan region. The regional plan visualises to work out the requirements of industrial area on the basis of an average density of 75 workers per hectare, in the region, and 125 workers per hectare in Bombay. On the basis of an estimate of 14 lakhs of workers to be provided in organised industries by 1991 in the region, the total area required for industrial zone would be nearly 14,000 hectares for the whole region. Since this is worked on a fairly long term basis, the addition of any further area for expansion at this stage may not be necessary. Allowing industries to buy their land requirements for period beyond 1991 and allowing them

[1] Ibid., pp. 34-35.

to keep such lands idle for long periods would not be desirable. If further areas are required these should only be zoned out in 1981 or when the plan becomes due for its first revision. Total gross area of the industrial zones sanctioned in the region including the Taloja industrial area is over 12,950 hectares.

It may be necessary to have a major industrial zone in the Trans-Harbour area for port-based industries and for the proposed metro centre around Nhava-Sheva, so as to provide a good industrial employment to the population. An industrial area of about 1,500 hectares seems to be indicated at this location. Deliberate attempts would be necessary to infuse industries along the Bombay-Agra road (in Bhiwandi Taluka) and in the Vasai taluka to achieve a balanced development within the region. An area of 200 hectares each at both these locations has been suggested in the first instance. The industrial area in Vasai taluka may be located between the Ahmedabad road and the Western Railway within easy walking distance from the stations. An area of about 100 hectares for the development of ancillary industries around Hindustan Organic Chemicals at Apte may also be necessary. With these additions the total area of industrial zones in the region would be around 14,950 hectares. Incidentally, a curtailment of about 800 hectares in the industrial area in Greater Bombay is possible. It is also suggested in the Regional Plan that, " Beyond the above, no further additions to the industrial zones should be made as it would amount to excess zoning for industries which will not be required under any conditions."

After the Bombay Metropolitan Regional Plan came into effect, the Maharashtra Government announced a new policy in January 1975, for location of industries in the Bombay Metropolitan Region. The objective of the new policy is dispersal of industries and to improve the quality of civic life in the region. The salient features of the new policy are given below :

The Metropolitan Region is divided into four zones as follows:—

Zone I : Bombay Island excluding Wadala-Anik industrial area.

Zone II : Wadala-Anik area, all suburbs of Greater Bombay, Thane and Mira.

Zone III: New Bombay area.

Zone IV: Remaining area in the Metropolitan region.

It is stipulated that establishment of any new industries large, medium or small scale, or expansion of existing industries would not be allowed in Zone I. An exception could be made only in the case of essential service industries. Zone II is also closed for new large or medium-scale units, while marginal expansion of the existing textile mills, subject to approval of a High Power Committee, would be permitted. Small-scale industries having an investment in plant and machinery not exceeding Rs. 7.5 lakhs

would be allowed in the approved and earmarked industrial areas and industrial estates in Zone II under certain conditions. Expansion of such units in the future would not be allowed. However, factories approved by the Government of India which might be set up in the Electronics Export Processing Zone at Marol may be permitted in view of their importance as export-oriented industries.

New large, medium and small-scale units would be allowed only in the industrial areas at Trans-Thane creek and Taloja which are being developed by the Maharashtra Industrial Development Corporation in Zone III, and also in the Industrial area to be developed near Nhava-Sheva. A preference would be given to export-oriented and import-substitution industries. The rest of Zone III would be earmarked for residential purposes.

As regards Zone IV, new large and medium industries would be permitted in Zone IV only in the existing and proposed industrial areas of the M.I.D.C. at Kalyan, Bhivandi, Dombivli, Kalwa, Ambarnath, Apte-Turade, and Vasai. Small-scale factories would also be allowed in areas earmarked for industrial use by the concerned local authorities in conformity with the Regional Plan.

With a view to giving further impetus to dispersal of industries away from the congested Bombay Metropolitan Region, Government has withdrawn certain incentives which were formerly available to certain areas in the region under the package scheme. It is envisaged that areas earmarked for industrial use in Greater Bombay would be reduced by at least 400 hectares. Any land available from shifting of industries would be utilised for housing for public welfare. Government is also considering the question of imposition of a levy on the existing and new industries in the region so as to mobilise finances for incentives to factories to shift from Zones I and II to Zones III and IV and to other areas in Maharashtra.

IV. **Transport and Communications :** The uninterrupted economic growth of Bombay and the surrounding areas has put a heavy strain on the arteries of transport from and within the city. The physicalf eatures of the countryside also impose a severe limitation on passenger and goods transport from and to the metropolis. A number of schemes in this respect have been taken up while many others are proposed.

Wilbur Smith and Associates, an American firm of traffic consultants, conducted a study on future transportation needs of Greater Bombay, in 1962-63. They recommended a phased programme for the development of a system of free-ways, express-ways and improved arterial streets, then estimated to cost Rs. 96 crores. Intensive operational improvements to the existing roads have also been suggested for removal of deficiencies. They emphasised the need for restrictions on parking and slow moving

traffic and for construction of pedestrian safety fences. Several measures have also been suggested for maximum utilisation of the capacity of existing roadways. The Wilbur Smith Plan proposed that the Bombay Island be encircled by free-ways and bifurcated by an express-way so that all points of the island would be within one mile of a free-ways or an express-way. In all 28 miles of free-ways, 14 miles of express-ways and 75 miles of major route improvements were recommended in the plan to be completed.

Subsequent to the submission of the Wilbur Smith Plan in 1963, a number of changes took place. These changes included considerations of a land use plan for Bombay, establishment of the Bombay Metropolitan Regional Development Authority, formulation of a Mass Rapid Transit System, etc. It was therefore necessary to have reappraisal of the Bombay Road.*

Development Plan and to integrate it with the plan for Mass Rapid Transit System proposed by the Railway authorities. In the meanwhile, preparation of projects as recommended by Wilbur Smith and Associates is going ahead particularly in respect of Link roads connecting the Western suburbs with the Eastern suburbs.* Their recommendations are detailed below:

Free-way System : (*i*) The West Island Free-way will connect the south portion of the central business district with northern suburbs, along the west side of Bombay Island. It will pass through Malabar Hill for a total length of 10.32 miles and will cost about Rs. 24 crores.

(*ii*) The East Island Free-way will afford easy transport between Byculla and the northern suburbs. It will be 8.91 miles and will cost Rs. 33 crores.

(*iii*) The Cross Island Free-way will connect the west and east island free-ways. With a length of about 4,200 feet, it will cost Rs. 4.9 crores.

(*iv*) The Eastern and Western Express-ways are proposed to be upgraded to free-way standard.

Express-way System : (*i*) The Central Island Express-way is proposed to extend from the north of Opera House area upto the Eastern Express-way passing through Haji Ali and Dadar and crossing the east island free-ways.

(*ii*) The Tardeo Express-way, 0.68 miles long, is proposed to connect the West Island Free-way with the Central Island Express-way.

They also proposed the improvement of 25 major roads which are estimated to cost about Rs. 18 crores.

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* *Draft Annual Plan for Greater Bombay*, 1978-79, District Planning and Development Council.

In partial modification of the Wilbur Smith Plan the Bombay Metropolitan Regional Plan suggested that (1) The Bandra-Kurla reclamation may be taken up on a priority basis for creating an alternative commercial centre; (2) The commercial zone in Backbay Reclamation should be restricted to 20 per cent of the scheme area; and (3) a metrocentre may be developed in Uran-Nhava-Belapur belt which together would considerably reduce the pressure on Bombay island.

The construction of the Eastern Express highway, the Western Express highway and the Thane creek bridge are important landmarks in the economic life of Bombay. The express highways have eased the problem of traffic congestion on the Bombay-Agra road and the Ghodbunder road both of which suffer from bottlenecks at several places and traverse the industrial and residential localities in the suburbs for long distances. They have also facilitated through traffic to the hinterland and the up-country. The Thane creek bridge on the Sion-Panvel road is one of the most important measures for solving the transport problems of the metropolitan region. It has not only reduced the travelling distance from and to Bombay, but also has ensured very speedy and safe motoring.

Another most important proposal for communication between Bombay and its wide hinterland is the provision of a new railway *ghat* to cross the Sahyadri ranges so as to link Bombay with the Daund-Manmad railway route *via* Kalyan. The two existing *ghat* routes of the Central Railway have to climb the plateau over steep ruling gradients which limits the load and speedy movement of trains. This has restricted the line capacity of the two trunk routes. The Central Railway is striving to increase the line capacity by pressing into service heavier electric locomotives which carry heavier load by over 30 per cent at better speed. This increase in capacity has also been absorbed by uninterrupted growth in traffic. It has therefore been suggested by the Planning authorities that the only way of breaking the bottleneck of inter-city goods and passenger transport for the region is the construction of a ' third ' *ghat* route connecting Kalyan to a convenient location on the Daund-Manmad section between Ahmadnagar and Rahuri. The initial estimate for its construction was put at Rs. 40 to 50 crores.

The study team of the Railways, however, recommended the construction of the one additional line each in the North-East and South-East *Ghat* sections, of the Central Railway. The estimated cost of the additional line on the North-East *Ghat* is Rs. 17.50 crores and that on the South East *Ghat* is Rs. 21.75 crores.* The work on the construction of the additional line on the North-East *Ghat* (Thal *Ghat*) was completed on 12th Aqril 1982, This line runs almost parallel to the existing line from Kasara to Igatpuri.

* Information from Central Railway (October 1977).

New Satellite Port at Nhava-Sheva : The transportation of merchandise to and from Bombay to the countryside has become very difficult as the present capacity of the Docks in Bombay is totally saturated. There appears therefore no alternative to set up a new satellite port at Nhava-Sheva on the mainland across the Bombay harbour. It will considerably divert a bulk of the cargo traffic with mainland destination directly into the mainland by-passing the congested routes in Bombay. The new port may initially handle bulk cargo and may be designed for its ultimate functioning as an independent port to handle all types of traffic.

Airport : Bombay is an international airport. However, the operational space available within the airport premises was insufficient to meet the needs of the growing domestic and international flights. It was therefore proposed by experts and the planning authorities that the present airport at Santacruz may be utilized for domestic air services, while a suitable site may be developed for an international airport. Alternative sites at Gorai-Manori and Mandva-Revas were under consideration. The former is within the Bombay Metropolitan Region while the latter is outside the region. Meanwhile the international airport was constructed at Sahar to the north of the Santacruz airport.

Railways : The Central Railway line in Bombay was constructed in 1853 while the Western Railway was opened section by section between November 1864 and January 1870. The quadrupling of the lines was done subsequently, but no major investments have been made in recent years. The Central Railway operates suburban trains upto Kasara 120 km. north-east of Victoria Terminus and upto Karjat 100 km. on the south-east line, besides the services on the Harbour branch upto Mankhurd and Bandra. The Central Railway runs 908 suburban trains daily and carries about 2.3 million passengers daily in 1983-84. Besides the suburban trains traffic which is unimaginably tremendous even by international standards, it runs a number of passenger trains as well as goods trains on its trunk routes to Howrah-*via*-Nagpur, Howrah-*via*-Allahabad, the Punjab area, Madras, etc. The Western Railway operates suburban trains from Churchgate to Virar, a distance of 56 km. and runs 745 trains and carries about 22 lakh passengers daily. It runs passenger and goods trains on the trunk railway route from Bombay to Jammu Tawi on the north, to Viramgaon in Gujarat and to various parts of Rajastan.

The capacities of both the railways in Bombay suburban section have been saturated, and there is not much scope for further increase in the utilization of the lines. The railways had estimated in the seventies that it would be necessary to invest about Rs. 60 crores to increase the suburban surface transportation capacity by about 50 per cent. In the nature of things this would appear to be a gross underestimate as the prices have multiplied and the extent of the problem has increased

immensely. As things stand at present commuters have to travel in local trains under the most oppressive conditions and with frayed tempers. Travelling at peak hours is an ordeal which with a little bit of breakdown in services creates chaos, leading to economic loss to the community and also to law and order problems.

One of the major difficulties in increasing the frequency of suburban trains on the Central Railway is the bottleneck between Masjid Bunder and Victoria Terminus, where due to steep curves and several cross-overs speed has to be restricted. It is necessary to remodel the yard at Victoria Terminus so as to speed up trains. The straightening of the curves may require the space occupied by the platforms to be brought in the circulation area, and the platforms may have to be re-designed.

The Railway Board has constructed a new link between Central and Western Railway, to by-pass the mainland destined goods traffic from Diva to Vasai. With the completion of this new link in April 1983 the goods yard between Dadar and Parel has become redundant and the area is now available for other uses. It is suggested by some authorities that this area could be utilised for re-locating the main line terminus of the Central Railway from V.T. If the main line terminus is thus shifted, remodelling of the yard at V.T. can easily be done.

Some experts in transportation planning have made another suggestion that the through trains terminus of the Central Railway at V.T. and of the Western Railway at Bombay Central may be shifted to the site between Sion-Dharavi and Bandra. They have also suggested that there should be a single terminus for through trains on both the railways at this new site. This will considerably reduce the pressure on the railway lines from Sion to V.T. and from Mahim to Bombay Central, and will release a lot of capacity for introduction of additional suburban trains. The railway yards at V.T. and Bombay Central will be available for restructuring so as to facilitate improvement in suburban trains operations. This measure will also facilitate the convenience of passengers who want to change over from Central to Western Railway and *vice versa*. The proposal is also plausible on account of another important factor that the land proposed for the site is comparatively free at present, and the cost of rehabilitation of the slum dwellers in the locality will not be large.

Some other authorities have suggested a third terminal for suburban railway at Ballard Estate. It is put forth that utility of the additional corridors of traffic as the possible augmentation of capacity along the existing railway corridors terminating at V.T. and Churchgate will be of a limited order. Hence it may be necessary to provide for a new passenger line in the eastern sector of the metropolitan area along with a third terminal to provide some relief. The terminal is proposed to be

located in Ballard Estate near the Mole station. The existing railway lines from Wadala to Ballard Estate *via* the double line tracks of the Port Trust could be the possible alignment for such a railway line. It is also believed that this terminal would ease the heavy traffic congestion on roads in the vicinity of V.T.

Some persons have advocated that in lieu of a third terminal at Ballard Estate better results would be obtained by joining V.T. to Churchgate and simultaneously removing the bottlenecks between V. T. and Masjid. It is suggested that if both these are done more trains could be run on the Central Railway, and in fact there would be no terminal station as trains will pass through both Victoria Terminus and Churchgate. It is believed that the advantage of this proposal is that pedestrian congestion of commuters from both the railway termini on the roads near V.T. and Churchgate would be avoided to a great extent. This would also reduce the demand on bus and taxi traffic by the commuters alighting at the railway termini.

A separate study has been done by the Metropolitan Transport Project (Railways)* for an additional corridor between Fort Market and Goregaon which is estimated to involve an investment of Rs. 154 crores. This is proposed to be an underground corridor with a terminal near Fort Market. It is also envisaged to provide an additional pair of railway lines between Bhandup and Kurla as an extension of the present Harbour Branch line.

The limitations of the Bombay V.T. yard deny a scope for handling of longer trains of more than 12 bogies. The Central Railway has therefore developed the Mazagaon yard as an auxiliary yard to deal with longer trains. The work of remodelling of the Mazagaon yard is being undertaken phase-wise. Some portion of the remodelling work is completed while some more phases are being undertaken. The total estimated cost of remodelling the Mazagaon yard is Rs. 1.02 crores.*

With an immense growth of industries in the Mulund-Thane areas it is felt essential to have a goods shed in the area. The railway authorities have therefore taken up the development of a goods terminal at Mulund, at an estimated cost of Rs. 1.41 crores. A part of the work in the first phase has been completed, and the goods shed is now open for inward traffic of certain commodities like iron and steel.*

The other proposals in the Regional Plan which are not discussed above are outlined below.

Inter-Regional Transport Railways : There were two alternate proposals for providing a link between the Central Railway and the Western Railway, *viz.*, (1) link between Diva and Vasai, and (*ii*) between Diva and

* Information from Central Railway (October 1977).

Vangaon, further north beyond the regional boundary. Both the links would be equally good so far as the necessity of serving the growing industrial town of Bhiwandi is concerned. The Diva-Vangaon link was however conceived to yield a better advantage of opening out large under-developed areas in Palghar and Dahanu talukas. The cost of construction of the Diva-Vangaon link was definitely going to be much higher than the Diva-Vasai link, because of longer distance and engineering hazards. The Diva-Vangaon link also showed a relatively lower benefit–cost ratio than that shown by the Diva-Vasai alternative. The railway authorities after considering the various pros and cons have opted for the Diva-Vasai link, and the work on the construction of the same is completed. It was estimated to cost about Rs. 24.3 crores.* This link is highly advantageous from another point of view as it directly joins the Western Railway route with the Bombay-Konkan-Cochin railway line emanating from Diva which has already been undertaken and a part of which is already under operation.

A part of the Bombay-Konkan-Cochin railway line from Diva to Apta and Panvel to Uran is already under operation and is serving the needs of a part of the Bombay Metropolitan Regior. The work of construction of the section of the Konkan Railway from Apta to Roha has been started recently (April 1978). This railway route will further develop the environs of Bombay besides Konkan region.

The Regional Plan has also proposed the construction of a railway line from Kurla to Karjat which will shorten the distance from Bombay to Pune and will serve the needs of the metropolitan region. This line will meet the industrial and commuter traffic requirements of the Trans-Thane creek area as well.

Roads : The Bombay Metropolitan Regional Plan suggested a number of new roads, bridges and by-passes to meet the pressing needs of transport from and to Greater Bombay and the Metropolitan region. The important of the proposed projects include construction of new bridges across the Thane creek to the north of the newly constructed magnificent bridge near Washi, a new bridge across the Panvel creek in continuation of Thane-Belapur road and an additional bridge from Bombay to the mainland area to its east. Two alternatives in this respect have been suggested, *viz.*, a bridge from Pir Pau to Elephanta and Nhava or a bridge or tunnel from Gateway of India to Uran.

The Regional Plan however accorded priority to the Panvel creek bridge because it coupled with the Thane creek bridge would shorten the distance from Bombay to the metro centre.

* Information from Central Railway (October 1977).

The Kasheli bridge on Bombay-Agra road and the bridge on the Bombay-Pune road near Thane which cater to the heavy traffic from Bombay to the rest of the country are due for immediate reconstruction. Diversion of major thorough-fares through Bhiwandi and Kalyan and the by-pass to Kalyan to provide a direct link from the Atale-Shahad and Ambarnath industrial areas to the existing Bombay-Pune road have also been suggested.

Mass Transportation : Mass transportation services in Bombay are provided by suburban trains and BEST buses. The suburban trains carried over 21 lakh passengers, while BEST buses about 20 lakh passengers daily in 1968. The acuteness of the traffic problem of Bombay can be judged from the fact that the number of passengers carried in BEST buses increased from 907.26 lakhs in 1972-73 to 991.95 lakhs in 1973-74, to 1016.74 lakhs in 1974-75, to 1084.95 lakhs in 1975-76 and to 1202.99 lakhs in 1976-77 and 13,367.82 lakhs in 1983-84. The number of buses in the BEST fleet was 1,402 in 1972-73, 1,478 in 1973-74, 1,530 in 1974-75, 1,639 in 1975-76, 1667 in 1976-77 and 2,325 in 1983-84.*

According to a survey by the traffic cell of the Town Planning Department of the State Government in 1968, the number of persons, trips made by the residents of the surveyed area on an average week-day by using different modes of transport was 47,20,611 of which 38,11,815 or 79 per cent were made by modes of public transport (about 39 per cent each by suburban trains and BEST buses). It is estimated that with the present rate of population growth the number of transit trips by media of public transport would increase from 38,11,815 in 1968 to 60,82,273 in 1981. The passenger traffic on the suburban trains of the Central Railway increased by 163 per cent from 1950-51 to 1966-67 while that on the Western Railway increased by 154 per cent. The increase in the number of trains was however very meagre on the Central Railway *viz.*, 31 per cent, and 117 per cent on the Western Railway during the period 1950-51 to 1966-67. The growth in traffic by buses from 1947-48 to 1967-68 was about 800 per cent while the bus fleet increased to a much smaller extent.

A survey of commuters was taken by counting the commuters at the gates of Victoria Terminus and Churchgate stations in July 1967. The survey revealed that during the morning peak hours as many as 84,000 commuters alighted at Bombay V.T. alone. It was also found that about the same number of commuters boarded the local trains in the evening peak hours at Bombay V.T. The number of commuters alighting at Churchgate in the morning peak hours was about 83,000,

* BEST Undertaking, *Administration Report*, 1976-77.

while almost an equal number boarded the trains during the evening peak hours.

The statistics of commuter traffic on the stations of the Central Railway, given below, show the formidability of the transport problem of Bombay. The volume of commuter traffic shows a fast and continuously rising trend from 1970 to 1976. There was a significant increase of traffic at every railway station. *Prima facie* it appears that the rate of increase in commuter traffic was higher than that of population growth. The railway stations are given in the descending order of the volume of traffic in 1976.

STATEMENT No. 18

COMPARATIVE FIGURES SHOWING DAILY AVERAGE NUMBER OF SUBURBAN PASSENGER TRAFFIC HANDLED AT EACH STATION ON BOMBAY DIVISION.

Station	1970	1972	1974	1976
1. Bombay V.T. ..	4,46,730	5,25,246	5,98,363	6,91,726
2. Ghatkopar	1,56,934	1,76,618	2,01,162	2,09,597
3. Kurla	1,54,591	1,82,636	2,26,130	1,68,567
4. Byculla	1,26,571	1,43,221	1,49,537	1,05,088
5. Dadar	1,40,487	1,30,485	1,88,754	1,52,218*
6. Mulund	85,708	99,880	1,05,259	1,09,776
7. Bhandup	78,065	93,701	1,00,546	1,08,229
8. Vikhroli	61,204	80,903	90,988	1,00,596
9. Chembur ..	54,595	60,882	70,622	88,929
10. Masjid	82,519	83,420	80,393	83,927
11. Sion	30,154	58,007	64,497	79,465
12. Wadala Road ..	50,519	58,953	73,926	77,025
13. Parel	57,439	61,877	63,783	61,340
14. Kanjur Marg ..	26,823	33,827	44,594	58,896
15. Sandhurst Road ..	47,292	50,319	55,144	48,121
16. Govandi	29,290	37,290	50,247	57,121
17. Sewri	44,297	46,647	50,741	56,895
18. Chinchpokli ..	38,703	38,366	41,808	47,127
19. Matunga	41,682	42,387	36,340	47,003
20. Bandra	27,181	40,148	51,101	46,777†
21. Cotton Green ..	46,504	38,050	44,006	54,755
22. King's Circle ..	25,251	31,599	34,838	39,935
23. Currey Road.. ..	33,797	32,583	36,074	38,015
24. Tej Bahadur Nagar ..	26,489	26,598	30,985	37,592
25. Reay Road	28,306	34,402	36,039	36,479
26. Mankhurd	18,891	23,886	29,112	29,114
27. Dockyard Road ..	27,798	29,559	28,667	26,154
28. Mahim	15,429	18,281	22,301	22,376
29. Vidyavihar	21,300	22,820	21,850	21,976
30. Chunabhatti ..	10,141	11,334	13,979	13,880

Note.—Figures include both outgoing and incoming traffic of season tickets and card tickets.

* Excluding cross traffic at DR—1,69,961.

† Excluding cross traffic at MM/BA—1,21,236.

Source.—Information from Central Railway (October 1977).

In spite of the efforts of railway authorities, travel in suburban trains at peak hours is hazardous as the trains are heavily crowded. The authorities introduced nine coach trains, and also increased some trains from time to time. A number of new coaches have also been pressed into services. The Western Railway completed the important project of quadrupling the operational lines between Churchgate and Grant Road. This increased the operational capacity of the railway as more trains could be pressed into operation. All these measures provided a temporary relief. But the entire problem is so formidable that it may really be difficult to evolve ready solutions.

In order to meet the requirements of increasing suburban commuter traffic, the Central Railway is planning to increase the frequency of train services from the present 6″ to 5″ and ultimately to 3″ in the peak periods on all the three corridors, *viz.*, through lines, local main lines and harbour branch lines. The work on the first phase for introduction of 5″ service has been sanctioned by the Railway Board, and some portion of the work was to be completed by 1978. This involved mainly respacing of signals, modifications in level crossings, elimination of certain level crossings, construction of a new maintenance car shed at Kalwa for E.M.U. (Electrical Multiple Unit) coaches and acquisition of more E.M.U. rakes.

As a measure of optimisation of suburban services certain proposals were also under consideration of the Railways. These proposals included, (*a*) remodelling of suburban platforms at Bombay V.T. for double discharge facilities, similar to Churchgate Station, and speedier outlet through the suburban concourse; and (*b*) doubling of the Chembur-Mankhurd single line section (4 kilometres) which will facilitate an increase in the number of trains on Chembur-Mankhurd section.[1]

The Regional Plan for Bombay Metropolitan Region has suggested various measures for augmentation of commuter travel facilities within the metropolitan area some of which are summarised below:—

(*i*) Reassessment of programme suggested by Wilbur Smith and Associates and carrying out that of the programme which is essential to relieve congestion.

(*ii*) Quadruplication of railway tracks in Borivli-Virar section and sections beyond Kalyan on the Central Railway. (Quadruplication of Churchgate-Grant Road section has already been completed.)

(*iii*) Introduction of twelve coach trains on the Central Railway and related improvements.

(*iv*) Improvement in frequency of trains by various measures.

(*v*) Provision of a third railway terminal at Ballard Estate or alternately joining Bombay V.T. and Churchgate by an underground railway.

[1] Work completed on 29th June 1980.

(*vi*) Shifting of Central Railway's through trains terminus from V.T. to a suitable site between Dadar and Parel.

(*vii*) Feasibility studies for the underground railway and development of one additional traffic corridor for mass transportation to serve immediate needs.

(*viii*) Augmentation of the bus transport capacity by adding higher capacity buses to the fleet and by increasing number of buses, depots and workshops.

Mr. J. B. D'Souza and Mr. C. D. Jefferis* made very valuable suggestions towards creation of a metropolitan transport authority for improvement in transport services. They wrote, " The situation and the prospect clearly demand an immediate and sustained effort towards optimising the use of all the transport resources available so as to meet the needs of citizens to the maximum. High on the list of resources for conservation and careful use, higher, in fact, than vehicles and rolling stock, are good space and rail track length, both of which will probably turn out to be the scarcest of all scare resources in 15 years' time. For this, not only will we need to free our roads from want on encroachment by petty shop-keepers and hawkers, from misuse of by reckless drivers who use up more than their fair share of road space. We will also have to strive to minimise road use by the most careful planning of bus routes and schedules and train schedules, a close co-ordination between train and bus services so that they dovetail into one another instead of competing. Co-ordination and planning of this kind can hardly be achieved by a set of separate authorities such as we now have, even if one were able to bring them together periodically in meetings for this purpose. Nothing less than a permanent Metropolitan Transport Authority, with control over suburban trains, buses, trucks and other vehicles, with responsibility for operation of public transport (trains, buses, etc.) for road maintenance and use, traffic and vehicle taxation and with influence over land use planning, especially the location of housing industry etc. can possibly deal with a problem of such scarcity and therefore of such size."

Mr. J. B. D'Souza and Mr. Jefferis* further advocated for population planning and land use controls. They said, " the influx of the people has been phenomenal, and the speed with which many of the newcomers have established themselves higgledy-piggledy in hideous squatters' colonies wherever space could be found, has made nonsense of whatever city planning has been done." They also very aptly said that the limitless population growth that such cancerous developments make possible, as also the random location of such squatters' colonies, coupled with their very high population density, impose unforeseen burdens on the

* Bombay Civic Trust, *Bombay Development and Master Plan*, 1970.

transport system, and make transport planning impossible. Hence, the necessity of population planning.

" There is every reason to believe, however, that the development of a sister city on the mainland across the harbour will accomplish this. It is an objective that must be promoted with the utmost speed and vigour, if the headlong population growth we now see in the city is not to produce a total strangulation of the transport system, reduce the level of commercial and other activities in the city and ultimately produce a blight."

".....We should refrain from disastrous courses like the reclamation of the Backbay area, and particularly the assignment of a large part of it to heavy traffic-generating commercial use."

" Such development would generate substantial volumes of new traffic as there is bound to be a very large addition to the total employment in the Fort area. It is expected that the development of the Backbay Reclamation area alone may create about one lakh new jobs. Most of these employees would be using the already overcrowded mass transportation services. Past experience shows that commercial areas generate far higher amount of traffic than any other urban land use. This will be particularly so when the proposed new commercial area on the Reclamation programme will be contiguous to the central business district of Bombay."

"The Backbay plans are an incredible essay in deliberate worsening of an already critical situation. They will involve an enormous outlay of the funds of Government and the community in the creation of problems for which enormously greater funds will be needed to solve."*

Many other authorities and knowledgeable citizens have expressed similar opinions about the traffic problem of Bombay and the Backbay Reclamation scheme. The Bombay Municipal Corporation has also requested the Government to abandon the scheme as it would put an unbearable strain on the civic services which are already inadequate to meet the existing demand. While many bodies and experts have stoutly advised to abandon the entire scheme, some others have suggested a number of modifications as regards the extent of land to be reclaimed and the pattern of utilization of the land. It is however not the objective of this study to probe into the desirability or otherwise of the scheme.

PLAN IMPLEMENTATION STRATEGY

The Gadgil Committee in its report to Government (1966) emphasised the necessity of setting up an adequate authority for implementation of regional development proposals. It was proposed that the regional

* Bombay Civic Trust, *Bombay Development and Master Plan*, 1970.

development authority should supplement and not supersede existing authorities. The Gadgil Committee observed as under : " It is clear that the regional planning and development corporation cannot and is not intended to take over the developmental activity of the authorities in the region. Its principal function would be to work out a frame of general policy related to the needs of the region as a whole in which development plans of the local authorities are fitted in a co-ordinated manner. To give substance to its policy it will be necessary for the regional corporation to undertake a series of planned major works. . . . "

While broadly accepting the Gadgil Committee's report, the organisational set-up envisaged under the Maharashtra Regional and Town Planning Act of 1966 was somewhat different. The Plan implementation authority was called New Town Development Authority with the object of laying out the development of a new town. The authority was authorised to acquire, hold, manage and dispose of lands and other property, to carry out building and other operations, to provide water, electricity, sewerage and other services, and generally to do anything necessary for the cause of the new town.

Subsequently Government constituted the City and Industrial Development Corporation (CIDCO) for the implementation of the Metro Centre development programme. The object of this body is to create a New Bombay city to reduce the pressure on Greater Bombay by developing an attractive area on the land across the harbour. The planned New Bombay city, also called the Twin city in common parlance, is expected to absorb immigrants as well as some of the existing population of Bombay. While it will take a long time to develop the plan and a still longer time to implement it, some steps have been taken which may help to some extent. A big housing estate has been constructed at Vashi to provide accommodation for about 50,000 persons, with modern amenities.*

After some experimental measures the State Government constituted the Bombay Metropolitan Region Development Authority for the purpose of planning, co-ordinating and supervising the proper, orderly and rapid development of Greater Bombay and the other areas within the defined region. The Metropolitan Authority also called BMRDA, is a corporate body with very wide powers and executive functions. It consists of many ministers of Maharashtra, the Mayor of Bombay, the presidents of Thane and Raigad Zilla Parishads, presidents of municipal councils in the area and many other officials and non-officials. The official machinery of the BMRDA is headed by a Metropolitan Commissioner. The powers and functions of the BMRDA which

* Details of the development programme of the CIDCO which refer to the reduction in pressure on Bombay are given elsewhere in this chapter.

are already mentioned earlier are quite onerous. The BMRDA is empowered to give directions with regard to the formulation and implementation of any development project or scheme, and it may also under-take any development work in accordance with the Regional Plan It is also endowed with financial powers including taxation, betterment. levies, etc. It excercises all its powers and performs the duties under the Bombay Metropolitan Region Development Authority Act in accordance with the policy guidelines from the State Government.

BANDRA-KURLA COMPLEX

The high rate of population of Bombay as a result of the post-war industrialisation, urbanisation and the influx of displaced persons from Pakistan, made it imperative on the part of the authorities to appoint various committees and study groups. These committees and study groups suggested several measures to deal with the situation. The Modak Mayer Plan Report (1948) suggested stoppage of further activities in the Island and open up areas immediately to the north of the Island. It had made a specific reference to the development of lands in the Bandra-Kurla area. The Barve Study Report (1958) also had recommended establishment of another new centre of activity in the Bandra-Kurla area, somewhat on the lines of Connought Circle in New Delhi, to help decongestion of the Island. The Bombay Development Plan (1964) had also provided for the development of low lying areas in Bandra Kurla for a commercial complex.

The Gadgil Committee (1965) under Chairmanship of Prof. D. R. Gadgil, the noted economist, highlighted the need for overall regional planning, and recommended *inter alia*, the reduction of concentration of economic activity in Bombay, decentralisation of industries and urgent development of the main land in the environs of Bombay. Accordingly the Bombay Metropolitan Regional Planning Board was set up in 1967. A draft Regional Plan was prepared by this organisation in 1970, which recommended among many other measures, freezing of office and commercial employment in South Bombay, limitation of population of Bombay to seven millions, development of new growth centres like New Bombay, Kalyan complex, etc., to absorb most of the new growth in population and tertiary sector jobs. This Regional Plan was sanctioned by the Maharashtra Government in 1973, and as a follow-up measure the CIDCO took up planning and development of New Bombay as a counter-magnet to Bombay. The Government also set up the Bombay Metropolitan Regional Development Authority (BMRDA) in March 1975 as a planning, co-ordinating and development financing agency to achieve the objectives of the Plan. The Regional Plan (1970-91) also highlighted the need for certain amount of internal

restructuring within the Greater Bombay area itself, particularly to bring about a redistribution of the population as between the city and the suburbs. The Plan focussed mainly on the importance of development of an alternative commercial complex in Bandra-Kurla area aimed at arresting the further growth of tertiary sector employment in South Bombay. This is the genesis of the Bandra-Kurla complex.

About 40 years ago, a large area of open land was available in the Bandra-Kurla complex. However, the unco-ordinated reclamations and encroachments on the periphery in the subsequent period gave rise to adverse environmental conditions besides the loss of area on account of encroachments. In order to avoid haphazard growth and to promote orderly development the Maharashtra Government appointed the BMRDA as a special planning authority for this complex in 1977.

The BMRDA has planned a strategy for the development of this complex on a priority basis. As this is one of the most prestigeous programmes of the BMRDA, it would be of great interest to give an account of the planning strategy for this complex. The strategy is based on the following considerations:—

(*i*) Restructuring of the city's pattern of future development by attracting a large number of offices, wholesale trade activity and godowns in order to decongest South Bombay and to relieve the pressure on the transportation system.

(*ii*) Make up the deficiencies in social, cultural and shopping facilities in the surrounding areas by providing space for these.

(*iii*) Improvement of the environmental conditions by channelizing the creeks and providing sufficient parks and gardens, besides ensuring orderly development in the commercial and residential areas in the complex itself.

(*iv*) Redevelopment of the existing slums in the Dharavi area on the southern side by providing additional new land for serving as transit camp area which would be finally used for residential purposes. Any success in this regard is bound to improve the environment to a large extent.

(*v*) Development of the area on the basis of a financially self-generating scheme in suitable phases.

This would involve formulation of a proper land use and transportation plan linking the various existing corridors of transport. A suitable balance between the residential and commercial use and exploitation of the aesthetic, architectural and environmental aspects of the situation has to be aimed at. The strategy about the Bandra-Kurla complex serving as a tool for restricting some of the activities in South Bombay would require pursuance of suitable policies like controlling further

inflow of offices and other jobs in South Bombay. This would also involve co-ordinated efforts of all the concerned organizations. Simultaneously, urgent actions are also being taken for the development of other major growth centres like Kalyan complex, New Bombay and Mira-Bhayander areas to ensure that the development of the Bandra-Kurla complex is not undertaken in isolation and that there are simultaneous efforts at decentralization and dispersal. The development of Bandra-Kurla complex is aimed at restructuring Greater Bombay on the principles of town planning.

With the development of the Bandra-Kurla complex as planned, bulk of the jobs would be decentralized by way of shifting the wholesale textile markets and the ancillary activities, like godowns, commission agents from B and C Wards of Bombay Island. This will greatly help in decongesting that area. Suitable action is initiated on ensuring that the shift actually takes place and that this does not result into coming up of an additional market. Action is also initiated on utilizing the vacated premises for alternative purposes like retail shopping, public utilities, open spaces, schools, etc. Simultaneously, BMRDA has already restricted construction or creation of any new office premises or wholesale establishments in the Bombay Island. Incidentally, the wholesale markets in iron and steel and agricultural produce are also proposed to be shifted to New Bombay.

" It is expected that after completing the proposed channelization and the reclamation, not only the flooding situation but the environment in the area will also considerably improve. Salinity of the water will increase during dry season which will reduce the mosquito nuisance. The increased tidal influx will also enable relatively more dilution of whatever pollutants still find their way into the creek. The area would be turned into a sea water lake. The water in this basin can be replenished by discharging into the sea at low tides and taking fresh water at high tides with the help of the gates periodically. This will enable the creek area, presently having offensive smell and a filthy appearance, to be kept always under sufficient depth of water abating most of the nuisance. This basin can then be flushed as often as required by a small dredger to stir the muck accumulation; the same can eventually be got rid off completely. The basin and its environ can then become places of recreation, for example, a large lake for boating, with a 15-m wide water-front wooded promenade.

" Thus, the work of channelization which enables further reclamation and development provides an engineering challenge as well as opportunity for internal restructuring of the city's development pattern and improving the environment and ecology of the area. The entire project

is not only self-financing but will yield a substantial surplus by disposal of developed plots."*

NHAVA-SHEVA PROJECT

The Union Government has waved the green signal to the Nhava-Sheva port project (1982). The idea of this port across the Bombay harbour was first mooted two decades ago. The cost estimate of the project has soared from Rs. 50 crores to nearly Rs. 600 crores. A total provision of barely Rs. 13 crores has been made in the Sixth Plan for this project. The project is of national importance, although the Maharashtra Government and the Bombay Port Trust have more than ordinary interest in it. The twin city project, which has yet to show signs of progress, will get a powerful fillip once the satellite port gets going. Indeed, a vast area surrounding the Nhava-Sheva site is readily available for the development of a wide range of port-based industries and trading activities, including a free trade zone. The State Government is addressing itself to the problem of exploiting this opportunity for reducing the pressure on Bombay. The project is designed to handle, among other things, the burgeoning container traffic as also bulk cargo traffic, which cannot be easily catered to by Bombay Port with its limited back-up space and other deficiencies. Experience has shown beyond doubt that Bombay Port cannot easily accommodate vessels requiring a draft in excess of about 28 feet. This is because in the wake of the intensive utilisation of berths dredging on a sustained basis has become difficult, if not impossible. With berth occupancy reaching a very high level of 90 per cent or so as against the desirable optimum of 65 to 75 per cent, it is not surprising that congestion has become a chronic problem and demurrage and the loss of shipdays have been haunting shippers and shipowners alike. It is good to note that the Government has envisaged the setting up of a committee of secretaries to the departments concerned to expedite decision-making and to monitor the progress of work on the project.

DEVELOPMENT PLAN FOR GREATER BOMBAY

(BOMBAY MUNICIPAL CORPORATION PLAN)

Planning of the development of Bombay was sought to be done from time to time by the Municipal Corporation and the State Government. The earliest effort in this direction was initiated in 1888 under the Building Regulations in the Bombay Municipal Corporation Act of 1888. During the subsequent period many enactments were enforced for controlling the development of the city. Most of these measures were however in

* Mr. N. V. Merani, BMRDA, *Bandra-Kurla Complex* (pamphlet, 1980).

the direction of town planning, and they lacked in many respects. They were not enough for planning the development of a metropolitan city and the commercial capital of India. An outline of a Master Plan for Greater Bombay was prepared for the first time in 1948 by the Bombay Municipal Corporation. It had however no legal validity and it did not conform to the pattern of a detailed plan as envisaged by the Bombay Town Planning Act of 1954.

The Municipal Corporation therefore prepared a comprehensive Development Plan for a Greater Bombay in 1964 which was sanctioned by Government in 1967. As stated in the draft plan itself, it was prepared in accordance with " the general planning ideals and principles with such modifications as may be necessary to prevent large scale dislocation, and undue hardships to people." The main objectives could be summarised as follows:—

(1) To protect the best character of the existing character of Bombay, to develop its structure and to remedy several defects.

(2) To encourage housing activities in the suburban areas with a view to reduce congestion in the city.

(3) Dispersal of population to the suburbs and decentralisation of industries and commerce from the city with the twin object of redeveloping the congested areas in the city as also to ease the transport problem.

(4) Discouragement of expansion of commercial establishments in the southern tip of the island through zoning and floor space index control, and creation of other commercial centres in Greater Bombay.

(5) Increase in house building, provision of additional sites for schools, playgrounds, parks, hospitals, markets, recreational spaces and public utilities.

(6) Road widening, construction of new roads in suburbs and improvement of roads in city and suburbs.

(7) Reclamation of about 27 square miles of low lying areas for development.

(8) To ensure that all new development in Bombay conforms to the planned pattern.

The authors of the Development Plan appear to be aware of the fact that a comprehensive control on the development in Greater Bombay may lead to haphazard development on the periphery outside the city. This will have its undesirable effects on conditions in Bombay. The authors of the plan therefore pointed to the urgent need for the preparation of a Regional Plan for the planned development of Greater Bombay and the areas around it.

The Draft Development Plan was prepared by the Municipal Corporation and was finalised after giving due consideration to objections and suggestions from various quarters. The Development Plan, contemplated the 'designation' of about 2,718 acres of land in the city and about 12,485 acres in suburbs and extended suburbs for public purposes. The liability of the Corporation towards the total cost of land acquisition in the city would be about Rs. 43.57 crores and that in the suburbs about Rs. 74.73 crores. The Municipal share towards the total expenditure on capital works contemplated in the Development Plan, besides the cost of land acquisition would be Rs. 384.57 crores to be spent over a period of 20 years. In addition to this the authors of the Plan estimated that water works and drainage would cost about Rs. 137.38 and Rs. 58.07 crores, respectively.

The Development Plan for Greater Bombay has thrown light on the problems of the development of this metropolitan city. The authors of the plan are quite aware of the stupendity of the problem of planning the development of this city. A total solution to all the problems lies much further ahead than can be envisaged in any one plan. "The plan, therefore, produces only part solutions preventing recurrences of past mistakes, giving direction to its growth so that it conforms to current trends and avoiding wasteful results of haphazard development. But man's needs change with the times bringing in their wake change in planning ideas. With the passage of time some inadequacies as well as drawbacks in the Development Plan might also be revealed. For all these reasons, periodical reviews of the plan would be necessary."*

The authors of the plan have analysed the problems of the various facts of development of the city. They have further proposed a rational industrial location policy based on certain principles of land use planning and industrial zoning. They opine that from the point of water supply, and other socio-economic considerations the population of Greater Bombay should be limited to 8 millions, and it should not be allowed to cross this limit.

The plan proposes a number of measures for improving the condition of transport and for relieving the city of the hazardous transport problems. The measures included the widening of roads in the city and suburbs, construction of new roads, establishment of truck termini at suitable points, and provision of multi-storeyed and additional parking places which will relieve the arteries of traffic. As regards railways, more and more land is proposed to be made available for construction of additional rail lines and yards. They also pointed out to the desirability of tube railways in the city.

* Bombay Municipal Corporation, *Development Plan for Greater Bombay*, 1964, p. xxii.

Among many other proposals, the Development Plan proposed two new arterial roads along the fringes of the city on practical grounds and the desirability of keeping the through traffic away from the congested parts. The western promenade would connect Netaji Subhash Road with Mahim causeway along the western coast. The project would involve tunnelling through Malabar Hill and construction of a bridge from Worli to Bandra over the sea waters. This would prove a great boon to motorists and would minimise the travel distance by 6.5 km. On the eastern side, the artery of through traffic is proposed to be established by connecting P. D'Mello Road and Reay Road with Rafi Ahmed Kidwai Road.

The Development Plan contains a number of proposals and recommendations pertaining to the development of public utilities, civic amenities, medical and public health facilities and educational facilities. It is an exercise in improving the socio-economic infrastructure of this metropolis of India.

However, like many other large cities of the world, the problems of Bombay are not only formidable but also intractable. No single plan can evolve a solution to the enormous problems. The course open to the concerned authorities lies therefore through the formulation of a series of well thought out pragmatic plans and their effective implementation at the various levels of administration.

DISTRICT PLANNING

The State Government had prepared its own District Plan for Greater Bombay for the period 1974-79 which aimed at providing the essential civic amenities and healthy conditions of life in the city. Under the District Plan the State Government gave grants to the Bombay Municipal Corporation for certain development projects.

The Statement No. 19 gives the plan outlay under the District Plan of Greater Bombay, 1974-79.

The District Plan for Greater Bombay emphasised the necessity of improvement in the living conditions in Bombay by improving water supply and other social overheads. Keeping in view the enormous problems of this city which were particularly aggravated by the continuous influx of population, the plan had accorded priorities to water supply, sewerage, slum improvement, housing and link road which together accounted for 71.81 per cent of the total allotment of Rs. 20,47 lakhs for 1978-79. Another important aspect of the Plan was the provision of relief to educated unemployed persons by providing seed money assistance to them, apprenticeship training and more employment opportunities to the weaker sections.

STATEMENT No. 19

OUTLAY UNDER DISTRICT PLAN OF GREATER BOMBAY *

(Rs. in lakhs)

Sector/Sub-sector	1974-75 Actuals	1975-76 Actuals	1976-77 Actuals	1977-78		Outlay proposed for 1978-79		
				Approved outlay	Budget	Continuing activities	New schemes	Total Cols. 7+8
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Agriculture and Allied Services—								
Fisheries	4.25	3.56	2.10	8.67	8.67	12.00	....	12.00
Co-operation	1.13	0.05	2.00	2.50	2.30	3.30	....	3.30
Industry and Mining	4.76	11.67	9.72	29.20	27.20	29.34	....	29.34
Transport and Communications—								
Ports and Harbour	....	1.72	1.12	1.15	1.15	4.20	....	4.20†
Road Transport	23.93	68.73	58.78	67.01	83.59	63.06	10.00	73.06

Social and Community Services—									
General Education	85.57	233.26	213.23	304.22	305.27	275.01	0.71	275.72
Technical Education	0.58	0.09	17.52	12.48	6.69	8.01	16.33	24.34
Medical and Public Health	1.50	9.27	33.36	64.12	64.12	75.43	8.33	83.76
Sewerage and Water Supply..	105.01	154.58	488.45	850.00	350.00	900.00	....	900.00
Housing	119.10	469.62	442.29	246.98	393.04	102.93	150.00	252.93
Urban Development	20.96	85.52	34.79	268.53	40.50	264.33	24.00	288.33
Information and Publicity	0.06	0.33	0.75	0.45	0.45	0.20	0.22	0.42
Labour and Labour Welfare	....	16.68	12.07	18.41	12.34	15.05	2.20	17.25
Welfare of Backward Classes	0.30	10.89	16.00	19.04	16.44	15.52	....	15.52
Social Welfare	....	0.07	3.00	7.55	19.86	17.83	3.00	20.83
Nutrition programme	....	....	13.50	25.00	25.00	45.00	....	45.00
Total ..	367.15	1,066.04	1,348.68	1,925.31	1,356.62	1,831.21	214.79	2,046.00

* Annual Plan for Greater Bombay, 1978-79.

† Excludes Rs. 1 lakh on inevitable expansion provided in plan.

Water supply is the single largest and most important item of development under the District Plan. The Bhatsa Project which is of prime importance for augmentation of water supply to the city envisages to supply 300 m.g.d. water to Bombay Metropolitan Region besides providing irrigation to 11,800 hectares of land in Shahapur and Bhivandi talukas, after completion. In its first stage it would supply 100 m.g.d. water to Bombay and 50 m.g.d. for irrigating 5,900 hectares of land. A power house of 15 MW installed capacity is also contemplated at the foot of the dam.

The Bhatsa Project is a joint project of the Maharashtra Government and the Bombay Municipal Corporation. The share of expenditure to be borne by the Municipal Corporation is being met from a loan from the International Development Authority (World Bank) under an agreement between the International Development Authority and the Government and the Bombay Municipal Corporation. The Corporation had committed itself to the World Bank to commission the Project in June 1978. It is therefore obligatory on the part of the Government of Maharashtra to create storage at Bhatsa dam so as to supply water to the Municipal Corporation. The Annual Plan for 1978-79 therefore provided Rs. 400 lakhs for completion of the Bhatsa Head Works.

The other important schemes in the District Plan of Greater Bombay are construction of link roads, grants to Bombay Municipal Corporation for primary education, expansion of Government-aided private schools, development of higher secondary education (junior colleges), housing, environmental improvement in slum areas and urban development schemes.

The District Planning and Development Council for Bombay has accorded a high priority to slum improvement which poses a constant threat to the healthy growth of the city. The slum population in Bombay is estimated at 27 lakhs which includes the slum dwellers on lands owned by the Municipal Corporation, the State Government, the Government of India and private owners. Since the inception of the scheme about 13 lakh slum dwellers staying on State Government and Municipal Corporation lands in Bombay have benefited (up to 1977). The Annual Plan provided an amount of Rs. 150 lakhs for improvement of slum areas in 1978-79. This programme will be confined to slum dwellers on private lands in future.

In order to seek relief in transportation and road congestion it is proposed to implement the recommendations of the Wilbur Smith and Associates who have recommended a system of free-ways, express-ways and major street improvements to meet the demand for future transportation needs of Bombay. The island is proposed to be encircled by

free-ways and bifurcated by express-ways so that all points of the island are within a mile of free-way or express-way.

Some of the recommendations of the Wilbur Smith Plan are being implemented and being included in the District Plan for Greater Bombay. The Fifth Plan of the District envisaged an outlay of Rs. 3.50 crores for link roads. It was advocated that link roads between Western and Eastern suburbs of Bombay would help in relieving the congestion in the suburbs and in developing the interiors of the suburbs. They would also help in reducing the travel distance from Western to Eastern suburbs and relieving the transit traffic at Dadar.

The Fifth Plan provision for the link roads was as under:—

Name of link Road		Rs. in lakhs
1. Santacruz-Chembur ..	..	50.00
2. Chembur-Mankhurd ..	..	75.00
3. Andheri-Ghatkopar ..	..	50.00
4. Jogeshwari-Vikhroli ..	..	50.00
5. Goregaon-Mulund ..	..	125.00
	Total ..	350.00

The Integrated Water Supply and Sewerage Scheme, is another very important scheme, though not from the economic point of view but from the point of view of the living conditions in the city. It has been undertaken with the assistance of the International Development Authority and is a time-bound scheme, the first phase of which is required to be completed soon.

PRICE TRENDS

The study of price trends is very important in the context of formulation and execution of the price policy. Such a study assumes greater importance particularly because price policy is conceived as a long-term continuing policy and the practical administrative and other arrangements are to be planned for the implementation of such a long-term policy. An empirical study of prices helps formulation of a programme which has to be implemented in its two aspects, *viz.*, first the stabilisation of prices of agricultural produce giving full consideration to the protection and incentive to the agricultural producer and second, holding the price line especially as it impinges on the consumer. Thus, an empirical study of prices is useful for the planners of the economy and the administrators,

Such a study is also of great interest to the students of economic history. For the consumer, who was euphemistically termed as the king in a capitalistic free economy, such a study is only a matter of academic interest.

The trend of prices and the salient features of the market conditions as they affected the economic life of Bombay from 1737 upto the present time are analysed below.

The supply of provisions was one of the greatest difficulties with which Bombay in early days had to deal. The Portuguese hindered the grain supply and prohibited all provisions being brought from Salsette, in consequence of which the East India Company had to import rice from long distances and to store it in warehouses at Bombay.

The market price of rice varied considerably from year to year, as the following record shows:—

Year		Rs. per Muda	Year		Rs. per Muda
1737	..	23	1767	..	$20\frac{1}{4}$
1741	..	$13\frac{1}{4}$	1768	..	$15\frac{3}{4}$
1748	..	$29\frac{1}{2}$	1769	..	$15\frac{1}{2}$
1749	..	25			$16\frac{3}{4}$
1750	..	$19\frac{1}{2}$	1772	..	$17\frac{3}{4}$
1758	..	33..34			

The rates of wheat and gram similarly fluctuated during the middle of the eighteenth century, the price of the former varying from Rs. 24 per *Khandi* in 1743 to Rs. 48 per *Khandi* in 1754, and of the latter from Rs. 21 in 1728 to Rs. 11 in 1768. In 1776 most of the commodities at Bombay were cheaper than in Surat. There was however scarcity of foodgrains in Bombay and a committee was appointed to enquire into the causes of scarcity in 1780. The committee had advised to keep sufficient stocks to keep down prices.

1800-1907 : In 1802 the fall of rain having been very scanty famine was imminent in the Bombay Presidency, and prompt measures were accordingly taken to alleviate the impending distress. A temporary grain department was formed in Bombay. Government prohibited the exportation of grain from Bombay and suspended the levy of town duties to encourage imports. Government also authorised 200 bags of rice from their store being daily placed in the bazar for sale at fixed prices. Rice was also imported from Mangalore and thrown into the

market for sale. The famine of the year 1812 extended even further than that of 1802. But fortunately the scarcity continued only for a short time in Bombay and perhaps resulted from the eagerness of the merchants to send their grain to the famine-stricken districts in the hope of realizing large profits.

In 1813 Milburn observed that the prices at Bombay fluctuated continually from uncertain market conditions and they showed a tendency to increase steadily.

The state of the market between 1848 and 1858 may be seen from the following statement showing the average prices during the period :—

STATEMENT No. 20

Articles	1848-52	1858
Wheat per *phara*	Rs. 13 to 21	17 to 25
Rice per *phara*	Rs. 22 to 24	30 to 32
Bhat per *phara*	Rs. 6 to 8	8 to 10
Bajri per *phara*	Rs. 12 to 16	17 to 21
Jowar per *phara*	Rs. 10-0-0	15-4-0
Gram per *phara*	Rs. 12 to 17	17 to 21
Peas per *phara*	Rs. 14 to 15	16-8-0
Tur per *phara*	Rs. 14 to 15	14 to 20
Math per *phara*	Rs. 13 to 15	15 to 17
Udid per *phara*	Rs. 14 to 16	20 to 22
Beef per lb.	Pice 12 to 24	14 to 32
Mutton per lb.	Pice 12 to 17	12 to 18
Ghi per 28 lbs.	Rs. 7-2-0	10-8-0
Sugar per 28 lbs.	Rs. 4-2-0	6-4-0
Cocoanut oil per 28 lbs. ..	Rs. 2-5-0	4-3-0
Firewood per *khandi*	Rs. 2-15-0	4-7-0

The above rise was severely felt by the poorer classes and was generally attributed to the pressure of taxes and to speculation and hoarding. In 1861 the War in America began, in consequence of which Great Britain had to depend for her cotton supply mainly on India. This so raised the price of cotton that during the five years that the War lasted Bombay profited to the extent of more than 75 millions Sterling. Simultaneously

there was further rise in the prices of grain, as will be seen from the following statement * :—

STATEMENT No. 21

Grain	Prices before American War	Rise in conjunction with the War	Grain	Prices before American War	Rise in conjunction with the War
Rice ..	40	62	*Math* ..	24	32
Bajri ..	26	40	*Udid* ..	24	36
Wheat ..	32	45	*Val* ..	20	40
Gram ..	24	34	*Vatana* ..	25	41
Tur ..	40	60	Jowar ..	17	29
Mung ..	28	40			

The years 1893 and 1894 being marked by poor harvests in parts of India, a rise occurred in the prices of grain and specially wheat. In 1897 the demand for wheat for internal consumption quickened owing to continued bad harvests and prices rose rapidly and maintained a very high level, operating even as a check on exports. The price of wheat in Bombay rose to Rs. 7-15-1 in December 1897.

A committee appointed to study the cost of living in Bombay reported in 1907 that there were fluctuations in prices since 1870, but the highest level was reached in 1907. The price rise was more conspicuous in the case of food articles. The committee also reported the rise in house rent in Bombay.

The trend of prices in Bombay as in the entire country from 1913-14 upto the dawn of Independence in 1947 shows certain very interesting features. An empirical study of the behaviour of prices during this period is of immense interest to a student of economics. This was the period which experienced the unprecedented horrors of two World Wars which shattered the economies of many countries in the world. This period also experienced the pangs and agonies of the world-wide Great Depression of 1929-30, which devastated the economies of the U.K., France, America and the countries under British rule. These fateful events affected the economic life of a major portion of humanity, and gave rise to upheavals of demand, supply, production and prices. These international upheavals were experienced by the Indian economy, with probably the same intensity. The fate of Bombay was in no way different from that of the Indian economy.

The prices at Bombay continued to rise throughout the World War-I. The rise in prices was more in the case of manufactured articles than that

* *Gazetteer of Bombay City and Island*, Vol. I, p. 318.

of primary products. The prices of imported articles were higher due to the difficulties in importing them. After the end of the World War-I, the prices of almost all commodities saw a declining trend. The decline in price level was in consonance with the milder depression in the international commodity markets. In the case of Bombay, this state of decline was only a temporary phenomenon. Prices started picking up in 1921. In fact the plague famine of 1918-19 which affected parts of the Bombay Presidency had adverse effects on the prices and availability of agricultural commodities at Bombay. The post-war depression was thus short-lived. As a matter of fact the prices of cereals (Rice, Jowar, Wheat and Bajri), cotton and sugar rose very high in 1924. The index numbers of wholesale prices of cotton, sugar and cereals were 252, 208 and 134, respectively with the prices in July 1914 as the base in Bombay. It means that the prices of these articles in 1924 were very much higher than those during the World War-I.

The statement given below furnishes the index numbers of wholesale prices in Bombay, from 1924 to 1943:—

STATEMENT No. 22

INDEX NUMBERS* OF WHOLESALE PRICES IN BOMBAY CITY

(Base: July 1914)

Year (1)	Cereals (2)	Pulses (3)	Sugar (4)	Cotton (5)
1924	134	92	208	252
1925	151	107	166	189
1926	147	126	149	140
1927	141	132	134	150
1928	131	135	133	158
1929	144	140	135	133
1930	118	114	119	91
1931	74	81	112	72
1932	84	86	117	86
1933	82	77	108	83
1934	81	73	103	83
1935	82	78	107	94
1936	83	74	104	90
1937	93	84	106	91
1938	81	82	121	67
1939	88	95	140	73
1940	104	94	136	84
1941	109	89	135	88
1942	163	151	176	86
1943	175	274	242	94

* Government of Bombay, *Statistical Atlas of Bombay State*, 1950.

The period between 1924 and 1947 can broadly be divided into three blocks of years from the point of view of price trends, *viz.* (*i*) 1924 to 1929, (*ii*) 1930 to 1939 and (*iii*) 1940 to 1947.

The trends of prices for Bombay during these blocks of years are analysed below :

(*i*) *1924-29, the period of Buoyancy* : The prices of cereals and pulses continued to rise throughout this period. The price rise was more conspicuous in case of gram and *tur dal.* It is evident from the statement of index numbers of wholesale prices at Bombay, which is given in Statement No. 18, that the index number of prices of cereals increased by 10 points from 1924 to 1929 and that of pulses increased by 48 points in the same period. The prices of cotton which were at the highest in 1924 fell from 252 in 1924 to 133 in 1929. This decline could be attributed to the slump in demand for cotton by Indian as well as foreign textile mills. Similarly sugar prices also registered a declining trend throughout this period. The prices of jowar, bajri, rice and sugar in 1929 were all below their respective prices in 1924. The general picture was therefore one of downward trend in agricultural prices, pulses being an exception. It is interesting to note that the boom in the international economy in 1929 was unable to have any significant impact on the condition of prices in Bombay. The prices in Bombay, it appears, were more in consonance with the conditions in the Bombay Presidency.

(*ii*) *1930-39, the period of Depression and Revival* : This period was characterised by the slump in prices of almost all commodities in Bombay as compared to those in the earlier period. The unprecedented slump in prices was mainly the result of the international slump in demand. The prices of agricultural produce were probably at the lowest on account of lack of demand from foreign countries. The Great Depression which devastated the economies of the free world and the British dominions had a very adverse impact on the Indian economy. The pangs of the Depression were even more severe to the Indian economy as it depended mainly on the export of agricultural produce. Since the demand for agricultural produce in the international market declined severely, the prices showed a precipitous fall from 1930 to the middle of 1932. There was but only a very mild revival in the latter half of 1932.

The international economy showed signs of revival from 1932 onwards, and the process of revival continued throughout this period. In fact prices in the international economy started increasing at a good rate after 1934. It is however interesting to note that the price situation in Bombay was at variance with the international situation. The statement of index numbers of prices at Bombay, and the data on wholesale prices at Bombay market given in this chapter shows that the prices at Bombay touched the bottom in 1931, revived slightly in 1932 and again

declined. The decline in the prices of pulses, sugar and cotton was quite conspicuous. As a matter of fact the prices of these commodities were lower in 1933, 1934, 1935 and 1936 than those in 1930 and 1931. The prices of cleaned cotton which was Rs. 54.35 in 1924 and Rs. 17.27 in 1930 fell down to Rs. 3.95 in 1934.[1] The 1934 prices of all articles at Bombay were probably the lowest during the entire period from 1930 to 1939, and compared most unfavourably with those in any other year in this century, for which data is available. Between 1938 and 1939, the prices on the whole showed a tendency to rise and, among other factors, the threat of War and its actual outbreak in September 1939, were mainly responsible for this rise. However, all the prices were still below the level of 1924. It is also interesting to note that the index numbers of wholesale prices of cereals, pulses and cotton show that the prices of these commodities were lower in 1939 than those in July 1914. The prices of cotton at Bombay continued to be lower even during World War II than in July 1914.

(*iii*) *1940-47, the period of War and aftermath* : With the outbreak of World War II in September 1939, prices of consumers goods started increasing in Bombay. The gradual price rise was perceptible until 1942 in case of all commodities. It may however be noted that though prices in general were rising, the prices of certain commodities were lower in 1942, than in 1924. This was very much conspicuous in the case of cotton, raw sugar, ghee, linseed, *tur dal*, gram, etc. This was quite contrary to expectations. But the reality was what it was.

The price situation in Bombay as elsewhere in the country became adverse from the middle of 1942, the steepest rise in prices being in 1943. The prices of all commodities were very high in Bombay from 1943 to 1947. This was primarily due to the cessation of imports from Burma and other eastern countries, and also due to the fact that agriculturists as well as consumers were anticipating statutory rationing of foodgrains in the beginning of 1943. "Thereafter the free play of economic and other factors influencing the prices more or less came to an end and the prices began to be governed by the policy of the Government." [2] The prices of *tur dal*, wheat, linseed, ghee, tobacco, etc. reached a new high in 1947.

The Government had introduced statutory rationing in order to meet the situation of shortage of supply and rising prices of essential commodities. Distribution of such commodities was done through ration shops. Though the policy of rationing was abandoned from January 1948 in the State, statutory rationing was continued in Greater Bombay along with the cities of Pune and Solapur. The immediate effect of the

[1] The price index number for cotton was however the lowest in 1938. This, however, cannot be explained in terms of causal relationship.

[2] Government of Bombay, *Statistical Atlas of Bombay State*, 1950.

abandonment of rationing in the State was an increase in prices which continued to rise, contrary to all expectations. The combined index numbers of wholesale prices of foodgrains given in Statement No. 23 for the Bombay province bear testimony to the spurt in prices after relaxation of rationing.

STATEMENT No. 23

INDEX NUMBERS OF WHOLESALE PRICES IN 1948*

(Base year 1947 = 100)

Month	Rice	Wheat	Jowar	Bajri
January	193	313	168	190
February	209	273	176	202
March	242	240	176	206
April	266	245	180	209
May	286	250	195	218
June	304	285	207	229
July	306	257	206	229
August	294	250	201	218
September	294	253	203	213
October	294	263	204	212

As a result of the continued steep rise in the price level of foodgrains, the Government of India decided in October 1947 to reimpose controls on prices and distribution.

It may be useful to study the trend of prices in Greater Bombay from the consumer price index numbers for working class, the consumer prices index numbers for non-manual workers and the primary data of prices, in the city. To start with, the consumer price index numbers for working class in Bombay are given in Statement No. 24.

STATEMENT No. 24

CONSUMER PRICE INDEX NUMBERS FOR WORKING CLASS IN GREATER BOMBAY

(Base year : July 1933 to June 1934 = 100)

Year	Food	Fuel and Lighting	Clothing	House Rent	Miscel-laneous	Consumer price index number
1939 ..	114	100	86	100	97	106
1944 ..	263	289	275	100	230	237
1949 ..	366	306	345	100	281	307
1954 ..	439	292	384	105	348	359
1959 ..	511	349	381	106	414	412
1964 ..	622	427	501	183	521	516

* Government of Bombay, *Statistical Atlas of Bombay State*, 1950.

(Base year 1960 = 100)

Year	Food	Fuel and Lighting	Clothing	House Rent	Miscellaneous	Consumer price index number
1969 ..	190	172	150	108	150	173
1970 ..	198	178	157	111	154	180
1976 ..	314	379	290	134	245	294

CONSUMER PRICE INDEX NUMBERS FOR NON-MANUAL EMPLOYEES IN GREATER BOMBAY

(Base year 1960 = 100)

1961 ..	102	1970 ..	167
1964 ..	122	1973 ..	199
1967 ..	150	1976 ..	251

Source.—C.S.O., New Delhi, quoted in *Statistical Abstract of Maharashtra.*

The average wholesale prices of certain agricultural and other essential commodities at Bombay market in 1970-71 and 1973-74 are given in Statement No. 25.

It is evident from the consumer price index numbers for working class that the prices in 1949 were quite higher than in the base year 1933-34, the only exception being house rent. The outbreak of the Korean War in June 1950, however, caused a further rise in prices. The rising prices were mainly because of the situation in the international commodity markets, and the rising demand on account of a rush for stock piling of essential goods. The prices at Bombay were relatively free from sporadic fluctuations during the First Five Year Plan, though they were higher in 1954 than in 1949. During 1953 they remained fairly steady and recorded only a marginal rise. This was followed by a downward trend in 1954. The prices in March 1955 were lower than in March 1952. The beginning of 1956, however, witnessed a reversion of the downward trend and was in fact, a prologue to the phenomenon of rising prices in subsequent years.

The Second Five Year Plan was also a period of relative stability of prices, though the prices of food articles, clothing material and manufactured goods in 1959 were higher than in any year before. The prices of agricultural commodities in particular were quite high in 1959 which are also reflected in the consumer price index number for the year at Bombay. This year was however followed by conditions of recession in prices upto the outbreak of the Indo-China War in October 1962.

The consumer price index for Bombay attained an all time high in 1964 with the base year of 1933-34. The prices of almost all commodities were more than 400 to 600 per cent of those in 1933-34.

STATEMENT No. 25

AVERAGE WHOLESALE PRICES OF CERTAIN AGRICULTURAL AND OTHER ESSENTIAL COMMODITIES AT BOMBAY MARKET

(Prices in Rs. per Quintal)

Commodity	Variety	1970-71	1973-74
Bajra	U. P.	71.50	172.36
	Punjab	78.33	167.67
	Khandesh No. 2 ..	80.62	154.15
Pulses—			
Udid	Khandesh	121.17	177.98
Moong	Green	111.96	199.17
Moong	Chinai	149.46	226.19
Masur	Bold	103.33	167.92
Tur	White	126.58	174.58
	Red	114.87	152.09
Math	White	92.08	184.50
Gram	Yellow	105.54	194.68
Chavali	White	111.87	181.14
Dals—			
Green dal	....	111.12	223.37
Tur Dal	....	151.66	213.12
Oil-seeds—			
Groundnut ..	Bold	219.36	369.98
	Quality ..	208.58	346.50
	Khandesh ..	271.11	334.00
	Madras	225.27	369.37
Castorseed	Bold	149.42	246.25
Linseed	Bold	168.33	284.08
Oils—			
Groundnut Oil ..	....	474.58	762.73
Castor Oil	Commercial ..	346.75	583.75
	B. S. S.	370.83	634.17
Linseed Oil ..	Raw	397.87	645.42
Copra Oil	White	735.20	1078.75
Cakes—			
Groundnut.. ..	....	68.50	145.70
Castor	....	38.04	64.79
Gur	Kolhapur—1 ..	146.08	267.83
	Kolhapur—2 ..	121.16	249.17
Sugar	D-29 (controlled) D-30..	154.43	211.00 (C-30)

STATEMENT No. 25—*contd.*

(Prices in Rs. per Quintal)

Commodity	Variety	1970-71	1973-74
Milk (Per 10 litres) ..	Buffalo	17.66	22.58
Butter	Khandesh	1187.50	1738.33
	Belgaum	1172.50	1704.17
Chillies	Ghati	514.55	419.58
	Byadgi	621.88	462.92
	Madras	564.58	445.36
	Sankeshwar ..	567.86	498.86
Turmeric	Rajapuri	347.58	496.58
Ginger	Bleached	861.33	500.50
Tobacco (Bidi) (Per 40 kg.)	Nipani Bundal bhuki ..	252 to 283	N.A.
Tobacco (chewing) (Per 40 kg.) ..	Nipani Hundred number	102 to 120.40	160 to 190
Tobacco (leaf) (Per 40 kg.)	Nipani Black Mangri ..	170 to 190	230 to 255
Potatoes (Per 10 kg.) ..	Talegaon No. 1 ..	9.02	9.87
	Talegaon No. 2 ..	8.43	9.40
Onions (Per 10 kg.) ..	Nasik-1	3.11	6.95
	Nasik-2	2.77	6.53
Bananas (Per 10 kg.) ..	Khandesh	2.84	6.10
Vegetables—			
Cabbage (Per 10 kg.)—	....	8.19	9.20
Brinjals ,, ..	....	3.67	6.25
Gawar ,, ..	....	7.75	10.46
Poultry (Per dozen)—			
Chicken	....	36.17	52.33
Fowls	....	68.25	104.00
Eggs (Per dozen)—			
Large	Graded	3.73	4.88
Medium	Graded	3.63	4.79
Mutton	....	520.83	770.83
Fish	Bing	81.42	89.00
	Palla	44.36	130.33
Copra	Milling	486.67	696.92
	Rajapuri	661.67	916.25
Coconut	Calicut Moist (150) ..	670.33	1334.00
Cotton	Khandesh Virnar ..	635.75	N.A.
	Jaydhar—A ..	582.50	520.25
	Laxmi—A ..	590.67	906.43
	Kalyan	559.67	634.43
	Digvijaya	820.50	868.88
	Moglai Jarilla ..	634.00	N.A.
	Vidarbha M. P. Virnar..	727.00	N.A.

The price situation in Bombay as all over India assumed serious proportions after the Indo-Pakistan War of September 1965. The national economy had to bear an ostensible burden of the War which increased the burden of rising prices. Besides, the conditions of scarcity on account of drought in Maharashtra in 1965-66 aggravated the problem further. Speculative hoarding of essential commodities worsened the price situation. This adverse condition of prices continued throughout 1965-66 and 1966-67 with little relief. The national price situation became still more adverse after April 1967. This had an inevitable effect on the conditions in Bombay. All commodities were costly, and certain articles like sugar and wheat became not only costly but scarce also. The memory of an enlightened citizen of Bombay is still fresh that in June/July 1967 sugar was available at about Rs. 6 per kilogram while wheat and rice of good quality were not at all available.

The general level of prices registered a rising trend throughout 1967, the peak level was reached in January 1968. It however declined slightly in February 1968, and remained almost stable from February 1968 to March 1969. From April 1969 prices started rising gradually and maintained the same trend throughout upto December 1970. The consumer price index number for working class in Bombay touched a high level at 813 (Base year June 1934 = 100).

The year 1971 began with a slight decline in prices, but this was only a temporary phase as a rise in prices started from March itself.

It would thus appear that prices at Bombay as those in the country continued to rise from 1966 with short-lived aberrations. The situation however worsened after the Bangla Desh War of December 1971. The fate of the consumer in 1972 was more gloomy than before.

During this period government took a few measures to reduce prices. These measures included distribution of cereals, sugar, kerosine, etc., through fair price shops, and procurement of rice, wheat, jowar and bajri on a monopoly basis. The monopoly procurement of these items and ban on private trade in these articles added to the difficulties to the consumer. The conditions in the market were very oppressive to the common man who could not get the essential foodgrains in the open market. He had to take recourse to the fair price shops where he could hardly get foodgrains of good quality. The restrictions on transport of rice, wheat and jowar to Bombay from outside added to the difficulties to the consumer.

It would be interesting here to study the consumer price index numbers for the working class in Bombay for the years from 1966 to 1975.*

* Bombay Chamber of Commerce and Industry, *Annual Report*, 1975.

STATEMENT No. 26

CONSUMER PRICE INDEX NUMBERS FOR WORKING CLASS IN BOMBAY 1966 TO 1975*

Average Prices for the year ended June 1934 = 100

Months	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
January	604	670	750	741	777	804	844	910	1070	1323
February	608	675	733	737	777	808	848	924	1079	1332
March	617	679	733	755	781	817	857	941	1106	1336
April	626	684	750	759	795	826	866	963	1150	1345
May	626	702	733	768	799	826	870	999	1194	1368
June	630	710	741	790	808	835	892	1021	1230	1372
July	644	715	737	786	813	839	901	1043	1252	1354
August	653	719	737	781	804	844	884	1008	1288	1345
September	648	702	741	781	808	852	901	1012	1292	1336
October	653	719	737	781	813	857	901	1012	1319	1354
November	657	728	741	773	813	861	897	1048	1336	1345
December	662	737	737	773	813	848	906	1057	1323	1314

* Bombay Chamber of Commerce of Industries, *Annual Report*, 1975.

The consumer price index numbers given above are self-evident and self-explanatory, and need no explanation. It would however be interesting to throw light on the situation in general and the hardships to the consumer in particular.

Though the common man is accustomed to rising prices ever since the last about 25 years, he was perplexed at the tyranny of the price situation which he had to face from the middle of 1973. He experienced the pinch of the market conditions and saw no respite. The prices of everything went on rising at a galloping speed from June 1973 to June 1975. There were not even shortlined aberrations from the rising trend of prices. The oppressive nature of prices cast an ominous shadow on the economic situation. Government on its part intervened by imposing informal rationing and restrictions on the movement of goods, such as rice, wheat, jowar, sugar etc. However all the measures were lost in the vortex of a struggle for existence. There was some relief to the consumer as regards the availability of essential commodities during the emergency declared in June 1975. The prices of agricultural products witnessed a slight relaxation. But this was again a temporary phase born out of coercion and punitive measures. This phase was not destined to live longer and died along with the emergency in March 1977. As things appear now in May 1982, the battered consumer grumbles and grudges against the rising prices, but sees no relief or respite from the horrors of inflation.

WAGE TRENDS

A reference in connection with the subject of wages on the records of the Bombay Government was contained in a letter addressed by the Court to the Bombay Council in 1717, in which the court suggested that the Kolis of Bombay, who are described as being more faithful, ingenious and labourious than others, might be encouraged by paying them higher wages. In 1740, the Bombay Government ordered " that the Kolis' wages allowed by the company be increased to a half rupee a month each man". In 1767, it was found that the wages of labourers were very high, and as the price of labour had not been regulated for some years past, a committee was appointed by the Bombay Government for the purpose. This Committee fixed the rate of labour at 12 pice a day or 63 reas for 9 hours for every able bodied labourer and less in proportion to the age and strength of others. This rate was approved by the Bombay Government in 1768. In 1772 labourers received 10 pice a day, smiths from 16 to 21½ pice, carpenters from 22 to 27 pice a day, while domestic servants earned according to their rank from Rs. 3 to Rs. 12 a month.

The condition of the labouring classes, so far as wages were concerned, was decidedly better at the beginning of the century than it

used to be before. By about 1860 the daily wages of a labourer, working from 9 a.m. to 6.30 p.m. were on an average 4 annas. During the nineties of the last century they varied from 5 to 6 annas, and they varied from 7 to 8 annas in 1905. Simultaneously with this rise in wages there had also been a similar rise in the prices of food-stuffs, fuel, and in house rent. The wages of *Nowghanis* varied from 8 annas to 10 annas during 1890 but their earnings rose from about 12 annas to one rupee in 1905, the headman earning, at times, from Rs. 1-4 to Rs. 1-6 per day. The ordinary wages of unskilled labourers varied from 6 annas to 7 annas per day for a male labourer, from 4 annas to 5 annas for a female labourer and from 2 annas to 4 annas for children in 1905. In Bombay wages were paid in cash either daily, weekly or monthly. Labourers, who were strangers to this city, were paid daily and were called *Rojandars* (daily workers). In Government establishments payments were made monthly.

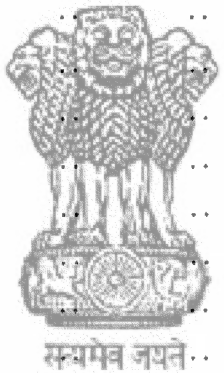
The class of hereditary servants were generally known as *Bankotis* and came from such places as Shrivardhan, Harnai, Bankot, Chiplun, Rajapur and Malwan, in the Konkan. This class also included a few Kamathis, Ghatis, Gujaratis, Muhammadans and Mahars. The *Bankotis* performed menial work in Hindu households. They were generally served with meals in the house in addition to monthly wages. Their monthly wages, with meals, generally varied from Rs. 3 to Rs. 6, and without meals from Rs. 9 to Rs. 12. Many of them preferred to work in factories and building operations as these avenues assured them higher wages.

At the beginning of this century the Hindus contributed three-quarters and the Muhammadans one-quarter of the entire mill-hand population of Bombay. The former included the Konkanis, the Ghatis, the Pardesis, etc., and the latter mostly consisted of the Julhais who were hereditary weavers. The average wages earned by mill-hands in a spinning and weaving mill were in the case of men, Rs. 14 to Rs. 30 per mensem; of women, Rs. 7½ to Rs. 9 and of children, Rs. 5 to Rs. 7 per mensem. A mill of 30,000 spindles employed about a dozen jobbers whose wages varied from Rs. 30 to Rs. 70 per head.

In 1908 there was an exceptional number of large works going on in Bombay, for example the New Docks with their subsidiary works at Elephanta, and a lot of construction activity including the operations of the Bombay Improvement Trust. The mill industry was also exceptionally active, more than a lakh of persons being employed in it, and the ordinary business-life of Bombay was much more brisk than it had been for several years. This state of affairs led to an unusual demand for labour which raised the wages of labourers in 1908. In these days wages used to rise from March to May due to larger demand for labour.

The average rates of pay per day which prevailed in Bombay city for the several kinds of skilled and unskilled labour in 1909 were as follows:—

Category	Minimum		Maximum	
	Rs.	As.	Rs.	As.
Fitters	0	15	1	13
Machinemen	0	12	1	15
Engine drivers, 2nd class	1	15	1	14
Engine drivers, 3rd class	1	3	1	6
Carpenters	1	0	1	11
Painters	0	12	1	12
Smiths	1	1	1	12
Stokers	0	8	0	11
Smith's coolies	0	7	0	8
Yard	0	6½	0	9
Moulder, Iron	0	14	1	15
Moulder, Brass	0	15	1	10
Gang Mukadam	0	13	1	0
Female Coolies	0	4	0	7
Tin Smiths	0	15	1	4
Sawyers	1	0	1	8
Assistant Sawyers	0	10	0	11
Moulder Coolies	0	6	0	8
Pattern Makers	1	2	1	13
Cranemen	1	2	1	6
Sign Writers	1	6	1	12
Saw Sharpeners	0	12	1	4
Polishmen	0	13	1	4



The variation in the wages of mill hands since 1882 to 1908 can be seen from the following statistics:—

Year	Weaver	Jobber	Reeler	Warper	Head knitter
1882 ..	14 to 20	35 to 45	5 to 7	15 to 17	12 to 15
1886 ..	14 to 20	35 to 45	7 to 7.5	15 to 20	14 to 18
1891 ..	14 to 25	35 to 45	7 to 8	12 to 20	7 to 20
1896 ..	12 to 30	30 to 50	7.5 to 9	12 to 20	10 to 20
1901 ..	12 to 30	30 to 50	7.5 to 9	12 to 20	10 to 20
1908 ..	15 to 30	35 to 55	8 to 9	13 to 21	12 to 20

The average annual earnings of workers in Government factories, textile mills, and industries such as engineering, metals and mining, food, drink and tobacco, chemicals and dyes, printing, wood, stone and glass, and skins and hides in Bombay Province during the years between 1939 and 1948 are given in Statement No. 27. The statement shows the comparative wage earnings in the various industries and the year to year changes in wages during the fateful years of the World War II and its aftermath. The indices of average annual earnings in Bombay Province during the period between 1940 and 1948, with the earnings in 1939 as the base are given in Statement No. 28.

A very substantial section of the working population in Bombay live in conditions of poverty. The class of workers engaged in domestic services, daily rated wage earners and casual labourers are below the poverty line. But it is a striking fact that though a substantial section of the workers as stated above are below the poverty line, the wages of almost all classes of workers in Bombay are higher than their counterparts in rural as also urban areas of the State. Whereas an average able-bodied unskilled worker in rural Maharashtra gets a daily wage of about Rs. 6 and those in towns of the State about Rs. 8.50, a worker in Bombay gets about Rs. 11. A coolie at a railway station in Bombay earns about Rs. 10 to 15 a day. A domestic servant or a maid servant who works for six to seven households earns about Rs. 180 to Rs. 200 a month.

As a matter of fact the prospects of getting higher wages and an assured employment attract thousands of persons to Bombay from Maharashtra and all parts of India. The heavy influx of population to Bombay is mainly due to the possibilities of higher earnings and better opportunities of employment.

STATEMENT No. 27

ANNUAL AVERAGE EARNINGS OF WORKERS IN BOMBAY PROVINCE

(Figures in Rupees)

Serial No.	Name of Industry	1939	1940	1941	1942	1943	1944	1945	1946	1947	1948
1	Government and Local Fund Factories.	381.11	467.07	477.93	544.32	612.92	721.02	738.65	735.09	831.95	1006.30
2	Textiles— ..	372.98	382.78	412.08	463.07	823.35	917.13	866.34	768.23	1023.97	1219.22
	(*a*) Spinning and Weaving	377.23	387.65	417.06	468.83	836.50	932.95	878.49	777.08	1041.25	1245.41
	(*b*) Hosiery ..	225.42	210.88	263.64	249.42	820.71	607.45	615.54	525.34	678.11	769.52
	(*c*) Silk ..	252.38	207.76	237.05	222.40	353.89	414.17	488.81	556.60	634.63	715.47
	(*d*) Woollen ..	271.79	398.84	408.67	505.25	730.49	785.37	768.27	675.01	876.79	1117.82
	(*e*) Miscellaneous ..	317.65	326.21	340.20	346.71	531.94	598.78	640.53	630.98	790.93	876.84
3	Engineering ..	453.27	476.54	496.23	555.25	762.21	822.08	834.85	869.77	995.26	1034.57
4	Minerals and Metals ..	280.96	324.33	286.97	393.92	545.71	604.67	692.89	763.66	843.37	935.35
5	Food, Drink and Tobacco	302.60	305.69	309.59	404.00	499.51	501.97	622.97	766.18	829.79	905.06
6	Chemicals and Dyes ..	256.82	269.62	274.59	372.74	567.91	634.59	534.39	663.99	773.32	868.06
7	Paper and Printing ..	389.83	381.09	374.72	397.70	501.72	585.16	661.96	690.22	876.28	974.98
8	Wood, Stone and Glass ..	264.25	231.14	297.57	312.49	416.30	544.10	550.29	547.94	638.07	713.64
9	Skins and Hides ..	202.30	191.80	249.13	248.10	356.83	457.31	534.77	539.53	590.76	690.65

Based on figures supplied by the Office of the Chief Inspector of Factories.

Source.—Government of Bombay, *Statistical Atlas of Bombay State*, 1950.

STATEMENT No. 28

INDICES OF ANNUAL AVERAGE EARNINGS OF WORKERS

(Annual average earnings in 1939 = 100)

Serial No.	Name of Industry	1940	1941	1942	1943	1944	1945	1946	1947	1948
1	Government and Local Fund Factories.	122.55	125.40	142.82	160.82	189.18	193.81	192.88	218.29	264.04
2	Textiles—	102.62	110.48	124.15	220.75	295.89	228.59	205.97	274.53	326.89
	(*a*) Spinning and Weaving ..	102.89	110.55	124.28	221.74	247.31	232.87	205.99	276.02	330.15
	(*b*) Hosiery	93.64	116.95	110.64	230.99	269.52	273.06	233.07	300.82	341.37
	(*c*) Silk	82.32	93.92	88.12	140.22	164.10	193.68	220.54	251.45	283.49
	(*d*) Woollen	146.74	150.36	135.89	268.77	288.96	282.67	248.35	322.59	411.28
	(*e*) Miscellaneous	102.69	107.09	109.14	167.46	188.50	201.64	198.64	248.99	276.04
3	Engineering	105.13	109.47	122.49	168.15	181.46	184.18	191.88	219.57	228.25
4	Minerals and Metals	115.40	102.13	140.20	194.23	215.21	246.61	271.80	300.17	332.91
5	Food, Drink and Tobacco ..	101.02	102.30	133.50	165.07	165.88	205.87	253.19	274.22	294.09
6	Chemicals and Dyes	104.98	106.91	145.13	221.13	247.09	208.07	258.54	301.11	338.00
7	Paper and Printing	97.75	96.12	102.01	128.70	150.10	169.80	177.05	224.78	250.10
8	Wood, Stone and Glass ..	87.47	112.60	118.25	157.54	204.73	208.24	207.35	241.46	270.06
9	Skins and Hides	94.80	123.14	122.63	176.38	226.05	264.34	266.69	292.02	341.40

Source.—Statistical Atlas of Bombay State, 1950.

It is however extremely difficult, and to be more realistic almost impossible, to analyse the structure of wages in Bombay in the absence of proper information. The data of earnings in the unorganised sector of employment is much less reliable than that for the organised sector. Despite the very patchy information available, it is observed that earnings in the unorganised sector are considerably below those in the organised sector.

" The lowest earnings of any activity which we have recorded were being paid to workers in small hotels *i.e.* Rs. 65 p.m. which includes an allowance for their free food. These workers are largely newly arrived male migrants who are without dependants and who also sleep on the premises, indeed, on such low incomes they would not be able to support or house any dependants."

" The legislated minimum wages are not a bad indicator of the prevailing average level of actual daily earnings. The enforcement machinery for the Minimum Wages Act is extremely weak and there are no doubt cases of actual daily wages being below the legislated minimum. At the same time, it is clear from the minimum wage reports that there has been no attempt by the Committees (Minimum Wages Committees) consciously to raise minimum wages beyond the ' capacity to pay ' of the employers concerned. Our impression is that minimum wages are not effective as minima but are representative of the average level of daily earnings. We do not, however, have any information on the number of days in a month that workers in the various activities are typically likely to find work. We have assumed that it is 26 days in a month but this is undoubtedly an over-estimate. The *mathadis* (headload carriers) and the metal porters are the highest paid unorganised workers..... By wage-bargaining and maintaining a closed shop they have succeeded in creating a situation in which most of them earn more than Rs. 160 p.m. (even allowing for the irregularity of work availability). "

" There is also considerable variation in earnings within the organized sector. The highest earnings (more than Rs. 350 p.m.) were those of workers in the partly foreign owned pharmaceutical firms who consciously operate a high wage policy in order to ensure a high quality and committed labour force and also as a defence against accusations of profiteering. Earnings in the cotton textile industry are also quite high for historical reasons. It has been argued that in the formative years of the Bombay cotton industry, the Millowners used high wages as a means of selecting, out of a potentially large pool of labour, a group who had some experience in the industry. Whatever the validity of this analysis, it is true that wage paid in the cotton mills started off relatively high in spite of the abundance of labour. There has also been a long tradition of trade-union activity in the industry so that wages have remained high though it is now a declining industry. Cotton mill wages are a benchmark for wages in Bombay. The textile dearness allowance (which provides 97 per cent

neutralization of cost-of-living changes for unskilled workers) is paid by many other enterprises and wages at the upper (but not the extreme) end of the range of organized sector wages clustered round the cotton-mill level of Rs. 225 p.m. in January 1968. Public sector employment was on a broad band around Rs. 160 per month. The entire spectrum of unskilled wages in the organized sector was very wide-ranging from Rs. 130 p.m. to Rs. 390 p.m." [1]

The data available from the Norms Committee Report shows that wages were relatively lower in the older more labour intensive industries, *viz.*, paper, printing, hotels, cinema production and exhibition, glass, wood, cotton-ginning, leather and tanneries and they were relatively higher in the capital intensive industries in Bombay *viz.*, engineering, chemicals and pharmaceuticals.

The following statement gives the average monthly wages of unskilled workers in the engineering industry in January 1968 in Bombay :—

STATEMENT No. 29

MONTHLY WAGES OF UNSKILLED WORKERS IN ENGINEERING INDUSTRIES IN BOMBAY, JANUARY 1968 [2]

Size of Employment	No. of Firms	Average monthly wages (Rs.)
0–24	14	127.85
25–49	18	139.34
50–99	12	155.35
100–199	10	171.49
200–299	9	186.20
300+	12	225.76

Roughly 25 per cent of the workers in the organised sector are employed in cotton mills in which the wage of an unskilled worker was Rs. 225 per month excluding bonus. It would vary, including bonus, between Rs. 237 and Rs. 270 depending on the firm concerned. The lowest wages in the public sector were around Rs. 160. Wages of unskilled workers in other sectors of employment vary between Rs. 130 and Rs. 390.

" It appears to be the case that 84 per cent of the workers in the private organized sector in the Bombay-Thane area are employed in establishments employing more than 200 workers. In other words, two-thirds of the non-cotton workers in private manufacturing are employed in establishments employing more than 200 workers. The majority of the workers in the private organized sector are in firms where the pay of the unskilled is between Rs. 180 and Rs. 250 per month. Taking all these

[1] Heather and Vijay Joshi, *Surplus Labour and the City*, 1976, pp. 97-98.

[2] Wage figures have been worked out from information on awards and agreements contained in the Report of the Norms Committee, Government of Maharashtra, 1969.

facts together, we estimate that the earnings differential between the organized and unorganized sectors is unlikely to be less than 100 per cent and could easily be as high as 150 per cent. If we also make some allowance for the present value of the employers' provident fund contributions and for the monetary value of various fringe benefits, we believe that 150 per cent provides the more likely figure".[1]

It is noteworthy that the wages as cost to the employer for employing a worker is much higher than the net monetary wage. This is because the employer in the organized sector has to contribute 11 per cent of wages for provident fund and medical insurance together. Further, privileged leave of a worker is a financial burden to the employer in so far as he has to employ a replacement for the worker during his absence. The following statement gives the statistics about the cost of hiring the lowest paid unskilled worker, in January 1968, in 15 leading firms in Bombay[2]:—

STATEMENT No. 30

COST TO THE EMPLOYER OF HIRING UNSKILLED WORKER IN SELECTED LEADING FIRMS IN BOMBAY IN JANUARY 1968

Name of firm	Size of employment in Bombay area	Rs. per month				
		Monthly Basic Wage + D.A. in January 1968	Bonus	Employer's provident fund and E.S.I.C. contributions	Leave salary	Total cost to the employer
1. National Organic Chemicals.	442	200	N.A.	22	25	247.00
2. Bharat Bijlee Ltd.	492	218.25	24	24	27	293.25
3. Phillips India Ltd.	750	218.25	43	24	25	310.25
4. Paper Products Ltd.	450	233.18	28.51	26	27	314.69
5. Siemens India Ltd.	N.A.	293.00	17.63	32	44	386.63
6. Mukund Iron and Steel Works Ltd.	539	218.25	33.00	24	22	297.25
7. Voltas Ltd.	1610	225.00	18.00	25	39	307.00
8. Poysha Industries Co.Ltd.	728	224.75	20.00	25	27	296.75
9. Chemicals and Fibres of India Ltd.	101	225.00	45.00	25	33	328.00
10. National Machinery Manufacturers Ltd.	2777	218.55	6.70	24	27	276.25
11. Metal Box Co. of India Ltd.	1652	244.80	24.00	27	39	334.80
12. Indian Aluminium Co. Ltd.	N.A.	218.77	43.00	24	22	307.77
13. Crompton Greaves Ltd.	1163	241.80	40.00	27	26.05	335.30
14. Hindustan Lever Ltd.	2677	227.80	45.60	25	27	325.40
15. Guest, Keen Williams Ltd.	674	241.50	20.00	27	40	328.50

[1] Heather and Vijay Joshi, *Surplus Labour and the City*, 1976.

[2] These firms have their headquarters in Bombay, but may have their establishments elsewhere in the country.

Source. 4 Ibid. p. 102.

Since 1968, the entire money-wage structure has shifted upward in pursuit of the cost of living index. As we have seen in the earlier section, the price level in Bombay went on rising continuously from the beginning of 1969. The price situation started deteriorating hopelessly from the middle of June 1973, and the prices in general continued to rise relentlessly upto June 1975. During this period of unprecedented hyper-inflation the cost of living index of the working class went on rising at a galloping speed and it reached the climax in June 1975. The soaring cost of living had a deep impact on the demand for higher wages. The working class became very restive, and agitated for a rise in wages. The agitation became more and more strong throughout 1974 and continued upto June 1975. In fact the demand for higher monetary wages was a demand for protection to real wages. The unprecedented price rise had made a mockery of the structure of money wages. This created conditions of chaos in the form of strikes, *morchas, bunds, gheraos* and many other forms of acute labour unrest. And the whole situation developed into a crisis. The agitation of the working class for protection to its real wages continued. It was however an irony that wages always lagged behind prices throughout the period upto May 1982.

SECTION II — STANDARD OF LIVING

Introduction : Consideration of the standard of living of the people over a period of time is difficult in the absence of precise information pertaining to income and expenditure of households. In respect of a vast city like Bombay, the problem becomes all the more difficult. The development of Bombay dates back to the dawn of the nineteenth century. Bombay expanded in width, breadth and length during the latter half of the 19th century. However, Bombay has now reached a saturation point when any further expansion would reduce this beautiful city to the city of slums. The growth of population necessitated the growth of schools, housing and medical facilities in the city. Even though schools and colleges have come up in thickly populated localities and rapid growth is witnessed in this field, still the city faces the problem of inadequacy of educational facilities.

What is true of educational institutions is equally true of medical facilities in the form of hospitals and dispensaries. There is no doubt that there are a number of hospitals and medical institutions either run by government or private or semi-government agencies like the Greater Bombay Municipal Corporation and there is no dearth of philanthropists who have always come forward to meet the needs of the city. However, the growth of medical facilities is not commensurate with the needs of the city. Though Bombay can boast of the most up-to-date and latest medical facilities and though there is no paucity of skilled talent one still

comes across a number of short-comings which may be attributed to the enormous proportion of population influx and its accompaniments in various forms.

In spite of the gradual extension of the city to distant suburbs the question of accommodation and inhabitation of the teeming millions of Bombay has always posed and will pose in future a serious problem. Thousands of hectares of land have been reclaimed from deep seas and shallow creeks and marshy lands. Agricultural land with an exception of a few patches of greenery here and there has practically disappeared, and yet the problem has not only been not solved but on the contrary has assumed serious proportions in the past few years. There is absolutely no scope for expansion in the settlement of old Bombay barring the demolition of old buildings and the construction of sky scrapers in their place. Naturally Bombay presents an admixture of variegated construction with slums stinking with garbage and oozing left overs side by side with palatial and towering buildings which always present a contrast in the standard. The extension of the present Bombay also offers no solution.

As a matter of fact the very face of Bombay has undergone a radical change over the last 100 years. The typical tiled houses with compounds and with all kinds of flower and fruit trees surrounding them were found in old Bombay with clusters of mango and palm groves hiding behind them small houses with tiled roofs. The growth of urbanisation has destroyed the vestiges of the past in no uncertain manner. The Bombay of the old had a fantastic and exquisite seashore, with huge and extensive beaches without crowds as at present.

The assessment of the standard of living in Bombay whose history, surroundings, people, and development are unique poses many problems. If the standard of living of different sections of population is to be measured in quantitative terms there has to be some common basis of comparison. The point is that the population of Bombay presents comparisons and contrasts of immeasurable magnitude so that proper assessment on the basis of reliable data, becomes rather difficult. On the one hand we find multi-millionaires residing in palatial quarters, availing of all the amenities, comforts and luxuries of modern civilization, whereas on the other hand we find slum dwellers living in the most insanitary and unhygienic conditions and carrying on their daily existence with the baremost necessities of life. The gap between the monetary and real standards in regard to the various sections of population is so enormous that it makes even minimal comparisons of the standard enjoyed by these different sections impossible. As a matter of fact in some sections of population by any standard of comparison it is very difficult to pin point as to where one sector ends and the other begins, whereas in certain other sectors again by any standard of comparison it is well neigh impossible

to find a common basis of comparison. Under these conditions assessment of the standard of living enjoyed by the people of Bombay over a period of time is rendered impracticable.

Economic Conditions : The study of standard of living in Bombay by conducting a methodical survey is a gigantic task because of inherent problems and complexities. The cosmopolitan nature of the city, a wide variety of occupational groups and a wide range of economic classes in the city render the study all the more complicated and well neigh impossible. It is, however, gratifying to note that the eminent economists of the University of Bombay undertook an indepth study of the economic conditions of the metropolitan city of Bombay. The team of economists under the able guidance and direction of Dr. D. T. Lakdawala, Dr. V. N. Kothari, Dr. J. C. Sandesara and Dr. P. A. Nair conducted a methodical sample survey regarding the economic conditions of the people of Bombay during the year 1958-59. It is pertinent to mention that the economists conducted the sample survey of 13,369 families from various strata of society. The sample families were selected with due considerations to the coverage of families from various income groups, occupational groups, various linguistic sections of the society from practically all the localities in Bombay. They had also given due considerations to the selection of families from all communities and all walks of life. The results of the study on economic conditions are analysed in an extremely methodical and well written report. There is no better study on this subject than this. It is, therefore, pertinent to quote the summary of conclusions on the economic conditions of the people of Bombay from the celebrated book *viz., Work, Wages and Well-being in an Indian Metropolis—Bombay*, published by the University of Bombay in 1963. The value of the findings and conclusions has not declined even after the span of about twenty years.

" *Conclusions* : (1) Of the 63,168 members of our 13,369 sample families, 19,301 or 30.6 per cent were earners. Among the male population of 33,913 slightly more than half were earners as compared to only 6.4 per cent among the female population of 29,255. Most of the males in the age group 25-54 were earning. In the age groups 15-19 and 20-24 among the males, only one-fifth and two-thirds of the total respectively were earning. The proportion of earners among females increased continuously from 4.1 per cent in the age group 15-19 to the highest figure of 16.4 per cent in the age group 45-54.

(2) The proportion of earners among immigrants was 35.3 per cent as compared to 29.9 per cent among the residents and 25.6 per cent among the displaced persons. This higher ratio of earners among the immigrants was due to a higher male-female ratio, the higher proportion

of earners among immigrant males in almost all the age groups, and the lower proportion of males below the age of 15. Among the immigrants only 31.6 per cent of the males were below the age of 15 as compared to 37.2 per cent among the displaced persons and 35.4 per cent among the residents. These are indicative of the tendency to keep the dependents in the native place.

(3) As is to be expected, the highest ratio of earners obtained in the lowest income group of less than Rs. 50 and the lowest in the highest income group of Rs. 1,000 and above. 42.1 per cent among the former and 26.2 per cent among the latter were earners. In the income group Rs. 50–74, 34.5 per cent of the total were earners. In the other groups, the proportion of earners ranged round about 30 to 31 per cent. Thus, though in case of the highest and the two lowest income groups, in verse relationship between the level of income and the ratio of earners was found to be prevailing, in case of intermediate income groups, the ratios did not show any definite pattern of variation.

(4) In the lowest income group of less than Rs. 50 as many as 37.5 per cent of the women were earning. In the income group Rs. 50–74, this ratio fell to 14.7 per cent, while in the other remaining income groups, the ratio ranged between 4.9 to 6.8 per cent.

(5) Among the males, in the age groups 15–19, 20–24 and 55 and above whose economic status which is likely to be most susceptible to the influence of income, no very definite pattern of relationship was observed. Thus 40.5 and 30.2 per cent of the males in the age group 15–19 in the income groups of less than Rs. 50 and Rs. 50–74 respectively were earning as compared to 9.1 and 7.2 per cent in the income groups Rs. 500–999 and 1,000 and above, respectively. In the intermediate income groups however, the proportion ranged all the way from 19.4 per cent in case of income group Rs. 75–99 to 28 per cent in case of income group Rs. 150–249. In case of age group 20–24 years also it was found that though the proportion of earners in the two highest income groups was particularly low due to the continuance of the studies, in the income groups Rs. 150–249 and Rs. 250–499 the ratio of earners (73 per cent) was actually higher than that obtaining in all the other lower groups. In case of males, 55 and above it was actually found that the highest proportion (76.3 per cent) of earners prevailed in the income group Rs. 1,000 and above and the lowest (55.6 per cent) in the income group of less than Rs. 50.

(6) The prevalence of female labour, education of young persons and retirement of old persons depend, besides income, on the attitudes or opportunities formed by the occupation of the head earner of the family. Our data showed that among the skilled and semi-skilled manual classes, the proportion of earners among women (6.4 per cent) was lower than

that obtaining in the professional classes. Among the clerical classes 4.6 per cent of the women were earning as compared to only 2.5 per cent among the lower administrative classes. In case of males in the age group 20–24 years, the ratios of earners among classes with broadly similar levels of income differed very widely. Thus among the large and medium-scale trading classes 66.9 per cent of the males in the age group 20–24 years were earning as compared to 46.8 per cent among the superior managerial and administrative classes and only 30.7 per cent among the superior professional classes. The proportion prevailing among the large and medium-scale trading classes was actually higher than that prevailing among such less well-to-do classes as subordinate administrative and clerical classes. In case of males of 55 and above also it was found that the ratios of earners varied very widely. Thus among the clerical classes only 54.7 per cent of the old persons were earning as compared to 80.8 per cent among the shop-assistants.

(7) A community-wise analysis of economic status showed that the proportion of earners ranged from the highest of 33.3 per cent among the Parsees to the lowest of 25.6 per cent among the Jains. The range of variation in case of females was much wider. Among the Christians 15.8 per cent of the women were earning as compared to less than 1 per cent among the Jains.

(8) Due to the peculiar migration pattern, as high a percentage of earners as 46.5 was found to be prevailing among the Hindi speaking people. The lowest of 24 per cent was reported by the Sindhis. Among all the other linguistic groups the percentage ranged from 28 to 34.7. Among the English speaking people about one-fifth of the women were earning as compared to about 3 per cent each among the Hindi and Urdu speaking people.

(9) An analysis of economic status on the basis of caste for the Marathi and Gujarati Hindus also revealed some interesting features. Thus among the Marathi speaking people, barring the exceptional case of other backward classes, the percentage of earners in case of males ranged from 59.8 per cent among the pastoral castes to 45.5 per cent among the Brahmins. The participation in economic activity by women differed by as much as 10.5 per cent in case of Brahmins to only 4.8 per cent among the Marathas. Among the Gujaratis the highest ratio of earners in case of males was reported by commercial castes (57.2 per cent) and the lowest by the agricultural castes (36.6 per cent).

(10) Taking the non-earners between 15–59, there were 4,125 males and 15,186 females. Studies featured prominently as a cause of dependency among the males in the age groups 15–24 years and household work among the females in all the age groups. In all, 2,380 or 57.7 per cent of the males in the age groups 15–60 years were studying and 1,194

or 28.9 per cent were unemployed. Among the females 13,798 or 90.9 per cent in the age groups 15–60 years were engaged in household work and only 1,085 or 7.1 per cent were found to be studying.

(11) Income-wise in the lowest income group of less than Rs. 50, studies did not feature as a cause of dependency at all. In the next two income groups of 50–74 and 75–99, this cause accounted for about one-fifth of the male dependents but none among the females were studying. In the subsequent income groups the importance of studies as a cause of dependency showed a continuous increase. Handicaps and unemployment accounted for a very substantial proportion of dependent males in the three lowest income groups upto Rs. 100. Handicaps forced as many as one-fifth of the males to dependency in the lowest income group of less than Rs. 50. In the two subsequent income groups also the ratio of handicapped persons was as high as 15 per cent. 46 to 48 per cent of the male dependents in the three lowest income groups were unemployed as compared to 28.9 per cent on the whole.

(12) Average income per family came to Rs. 268.5 per month. About half of the families received incomes between Rs. 100—249. Only 29.8 per cent of the families enjoyed incomes of Rs. 250 or more. About one-fifth of the families failed to obtain even Rs. 100 per month. The immigrant and the resident families were almost in a similar position but the displaced families were better off. About half of the displaced families had incomes of Rs. 250 or more as against the general average of 29.8 per cent.

(13) Parsees enjoying the highest family income of Rs 521.7 were followed by the Jains with Rs. 453.8. Christian families on an average were in receipt of Rs. 310.2 as compared to Rs. 256.2 in case of Hindus and Rs. 207 in case of Muslims. The proportion of families in receipt of Rs. 250 or more was as high as 61.4 and 56.9 per cent among the Parsees and the Jains as compared to 42.8 per cent among the Christians and only 28 and 19.9 per cent among the Hindus and Muslims, respectively.

(14) English and Sindhi speaking families with average incomes of Rs. 566.9 and Rs. 543.4, respectively were the most well-to-do sections of the population. These were followed with a long lag by the Gujarati and Konkani families with incomes of Rs. 382.4 and Rs. 353.7, respectively. Average income of a South Indian family was Rs. 261.4 as compared to Rs. 233 and Rs. 200.8 among Hindi and Marathi families. Urdu speaking families came the last with Rs. 181.5 per month.

(15) Among the Marathi Hindus 18 per cent of the Brahmin families and 13 per cent of the Maratha families enjoyed an income of Rs. 500 or more per month. Among other castes such high incomes were either entirely unknown or were extremely rare. Among the artisan class-II,

pastoral and agricultural castes and scheduled tribes and other backward classes not a single family reported an income of Rs. 250 or more.

(16) Among the Gujarati Hindus, as is to be expected, the commercial castes with as many as 31.7 per cent of the families in receipt of Rs. 500 or more, were the most well-to-do. Nearly three-fifths of the Brahmin families had less than Rs. 250. All the scheduled tribe families and three-fourths of the scheduled castes families did not even receive Rs. 100 per month. Majority of the Brahmin and artisan class-I and class-II and slightly less than half of the agricultural and pastoral caste families were in receipt of Rs. 100–250 per month.

(17) Income and family size seemed to be positively co-related. In the lowest income group as many as 68.5 per cent of the families consisted of 2 members or less as compared to 46.9 per cent in the next income group. The proportion of such families was only 5.6 per cent in the highest income group. On the other hand, families with 9 or more members formed 23.1 per cent in the income group Rs. 1,000 and above as compared to less than 2 per cent in the three lowest income groups. This would indicate that at higher levels of incomes proportionately more dependents were maintained in the city proper and that possibly the joint family system was more widespread among the higher income groups.

(18) The evidence in regard to the number of earners per family in various income groups indirectly supports the latter contention. Thus the proportion of multi-earner families was less than one-fifth among the families in the income groups below Rs. 150 as compared to 55.4 per cent for the income group Rs. 150–249. The proportion increased to 79.6 per cent in the next income group. In the income group of Rs. 500–999 as many as 88 per cent of the families had more than one earner.

(19) 12.4 per cent of the families were deriving income from property. The proportion of such families however, varied greatly as between various income groups. In the income groups less than Rs. 50 and Rs. 50–74 as many as 45.1 per cent and 37 per cent of the families were deriving income from property, possibly due to their links with villages. At lower levels of incomes remittances and payments from the paying guests were also important as supplementary sources of income.

(20) If *per capita* incomes of Rs. 35 and Rs. 25 could be said to be the cut-off points of poverty and destitution respectively, then 36.8 per cent of the families could be said to be poor and 20 per cent destitute.

(21) The percentages of destitute and poor families were the lowest among the Parsees, 7 and 22.6 per cent, respectively. Destitute families formed about 22 per cent, the highest proportion, each among Hindus

and other communities. It was again the Hindus among whom poor families were found in the largest proportion, at 38.5 per cent.

(22) Language-wise, Sindhis had the lowest proportion in both the destitute and the poor categories, with 7.3 and 13.8 per cent, respectively. Konkanis were second best in this respect with 8.4 and 17 per cent, respectively. On the other hand, Marathis had the highest proportions in both these categories with 24.9 and 42.8 per cent, respectively. They were followed by the Hindi speaking group in the destitute category with 21.1 per cent and the Urdu speaking group in the poor category with 39.1 per cent.

(23) Most of the uni-member and double member families were above the poverty line. The extent of poverty and destitution generally increased with the increase in the size of the family.

(24) 46.7 per cent of the families had only one adult male earner. 39 per cent of the families reported two adult male earners. Only 9.2 per cent of the families were putting either the female or juvenile members to work. An examination of the data with reference to *per capita* income showed that whenever the adult male earners were joined by other earners it was possibly an adaptation forced by the poverty of the family.

(25) On the whole, the families spent 82.7 per cent of their incomes. In the three lowest income groups however, expenditure exceeded income. *Per capita* expenditure in these income groups was Rs. 24.9 to Rs. 27.7. Thus it appeared that *per capita* expenditure around Rs. 25 was the barest minimum. Families spent a dimirishing proportion of their incomes at each successive higher level of income. The ratio of expenditure to income fell from 96.6 per cent in case of income group Rs. 100–149 to 50.1 per cent in case of income group Rs. 1,000 and above.

(26) 31.5 per cent of the families were spending their entire income. 13.6 per cent of the families were spending more than their incomes. Only 53.3 per cent of the families were making some savings. The proportion of the families making some savings increased with every increase in income.

(27) Food was the largest single item of expenditure accounting for 49.5 per cent of the total expenditure. Rent, clothing, fuel and lighting claimed 7.9, 7.3 and 5.1 per cent of the expenditure, respectively. Thus, more than 2/3 of the expenditure were incurred on basic necessities of life. Only 7 per cent of the expenditure were devoted to travel, education and medical facilities.

(28) The proportion of expenses on food tended to decline with every increase in income of Rs. 100 or more. In the income groups below

Rs. 100 however, the reverse tendency prevailed. Thus the proportion of expenses on food increased from 48.9 per cent in case of income group of less than Rs. 50 to 57.5 per cent in the income group Rs. 75-99. This would indicate that at very low levels of incomes, some economizing on food had to be undertaken in order to accommodate the barest minimum of other necessities of life.

(29) In all, a little over two-fifths of the families were indebted. Maintenance was the chief cause of borrowing accounting for 55.5 per cent of the indebted families. Most of the loans—62.9 per cent—did not exceed Rs. 500. Friends and relatives supplied loans to as many as 56.7 per cent of the indebted families. Employers helped 8.3 per cent of the families. Loans from the friends and relatives were largely interest-free. About half of the indebted families had obtained interest-free loans. 14.6 per cent of the indebted families had however to pay as high an interest rate as 30 per cent or more.

(30) Life-cycle of families showed that the family size increased continuously from 4.02 when the head of the family was 20–24 years of age to 5.06 when he was in the age group 45–49. Family income increased continuously from Rs. 160.8 when the head of the family was 15–19 years of age to Rs. 312.6 when he was between 45–49. For a subsequent decade the families were faced with static conditions. Family incomes reached the highest level of Rs. 358.7 when the heads of the families had passed 54 years. Family income and *per capita* income moved in the same direction, though not to the same extent. Thus, while the family income increased from Rs. 205.1 when the head of the family was 25–29 years of age to Rs. 239.2 *i.e.* by 16 per cent, the corresponding increase in *per capita* income was from Rs. 50.9 to Rs. 52.7 *i.e.* of less than 4 per cent, as during the same period of life the family size was increasing very rapidly. Generally it appeared that during 45–54 years of age the heads of the families were faced with static conditions in respect of family size as well as income. From the 55th year onwards it appeared that the joining of the other earners unaccompanied by proportionate retirement was possibly responsible for the increase in the family income as well as *per capita* income."

Bombay Population, a Profile : Metropolitan Bombay has developed into a vast population sprawl during the last about 200 years. The tiny seven islands of the seventeenth century, inhabited mainly by fishermen have today grown into one of the leading metropolises of the world. The city had population of a little less than a million in 1908. Today the population has increased to more than 8.2 millions. In the initial stages, this phenomenal growth was due to the natural harbour, the earliest railway network and the development of cotton textile industry. After independence, this pace of growth gathered further momentum on

account of many inter-related growth impulses. Today, it is the leading industrial and commercial centre of national as well as international standing having the headquarters of many public and private sector corporations.

In this prosperous city oppulence and poverty co-exist together. Evidences of urban poverty are ample. There are luxurious skyscrapers which are surrounded by slums and small shanties. The sordid and squalid conditions of living are a sad commentary on the growth of this city. Around 340 new persons enter this city every day in search of livelihood. The majority of them are poor and unemployed.

The trends of growth of population indicate that Bombay is likely to have the population of over 15 millions by the turn of this century. The population growth and its projection is given below :—

Year	Population (million)	Annual growth rate(%)	Year	Population (million)	Annual growth rate(%)
1901 ..	0.81	....	1961 ..	4.15	3.97
1911 ..	1.02	2.59	1971 ..	5.97	4.39
1921 ..	1.24	2.16	1981 ..	8.24	3.74
1931 ..	1.27	0.24	1991 ..	11.41	3.17
1941 ..	1.69	3.31	2001 ..	15.19	3.08
1951 ..	2.97	7.57			

Economic Conditions : During the last about 40 years Bombay has degenerated into a city of slums. The slums are the result of population growth, population influx and adverse conditions of living. The Government of Maharashtra, therefore, felt it imperative to study the problem of slums and conducted a census of slums. A hut to hut census carried out in 1976 identified 1,680 slum pockets in Bombay. These pockets were found to be inhabited by more than 28 lakhs of people. According to the slum census, the slum population was found in all the municipal wards except the wards B and C. Of the total slum population, about 21.10 per cent was in the island city, 51.40 per cent in the suburbs and 27.50 per cent in the extended suburbs.

The census of slums furnished some interesting information of the Bombay slums. The experts of the Maharashtra Housing and Area Development Authority prepared a paper (*Non-Conventional and Alternative Approaches to Shelter the Urban Poor*) in January 1981. The Paper gives an analysis of the characteristics of the slums, and selected socio-economic indicators of the slums in 1976. The Paper also analyses the results of other studies, conducted by various authorities regarding socio-economic indicators of slums in Bombay in 1979 and an income-wise distribution of slum households in Bombay.

The analysis throws a searching light on the economic conditions of the slum population, which forms a very large section of the city population. In fact the narrative of the economic conditions of over 28 lakh persons (1976 census) is representative of the economic conditions and standard of living of the entire class of economically weaker sections of society as also the low income group population of Bombay. Hence the narrative is applicable to a very great extent to other sections of poor people who share the economic lot of the slum dwellers though they are only a little bit well off due to some kind of accommodation in overcrowded and dirty chawls. The economic conditions of the chawl dwellers are really no better than those of the slum dwellers.

The following account is therefore based on the narrative in the Paper referred to above as it is representative of the economic conditions of not only the slum dwellers but also of the others who are not dwelling in slums but belong to the same economic group.

The huts have an average area of 133 sq. ft. or 12.5 sq. metres. They are constructed with the use of unconventional materials like untreated waste wooden planks, roofing material, gunny cloth, polythylene, bamboo mats etc., for walling as well as for roofing. Some huts make partial use of conventional building materials, clay-tile roofs, brick-walls upto a sill height or IPS flooring etc. Most of these huts are incomplete in their structure at a point in time, but display an incremental process based on factors like availability of finance, security of tenure, nature of job etc.

The hut is mostly a single room enclosure though there are huts with more than one room also. In fact, a recent phenomenon has been that two-storeyed rickety structures of wood planks are increasing in the suburbs as the density and family size increase.

Most of the huts do not incorporate any sanitary facilities like a bathroom or W.C. within the hut. In the far flung, sparsely populated village like slums one does find a tarpaulin or gunny cloth enclosure outside the hut for purpose of bath. The majority do not have independent water taps. All these amenities are meagrely provided by common services which are generally provided as part of the slum improvement by public authorities. It is a general observation that the slums in the suburbs and extended suburbs have mostly come up on lands which at that time were not suitable for development of conventional shelters, *i.e.*, low lying marshy lands, prone to flooding in monsoons, hill slopes, open spaces next to railway tracks, major roadways, etc.

Slums have also appeared on private lands which may be designated for public purpose in the development plan and hence were liable for compulsory acquisition. However, since the compensation payable for such acquisition is far below the real market rate and municipal resources have not been adequate enough to acquire all such lands even at these

low rates, the land owners have either passively allowed the slums. The system of land reservation has thus unintentionally provided land at better locations for housing of the poor.

Most of the slum dwellers carry out minor repairs and other maintenance work to keep the floor and roof together especially so before the monsoon. However, any permanent structural changes are not allowed according to the rules laid down by the Controller of Slums.

Socio-economic Features : The slum census of 1976 enumerates the socio-economic indicators of Bombay slums which are given below:—

1. Average size of households	4.38 persons
2. Percentage of workers to total persons ..	32.68 per cent
3. Average number of workers per household ..	1.47
4. Average income per month—	
(*i*) per household	Rs. 419.00
(*ii*) per person	Rs. 94.00
(*iii*) per worker	Rs. 285.00
5. Average rent paid per household	Rs. 15.02
6. Females per thousand males	754
7. Percentage of households paying rent for the huts.	47.92 per cent

A recent sample survey conducted by the B.M.R.D. authorities in four major slums of Bombay portrays the following features:—

Selected Socio-economic Indicators of Slums in Bombay in 1979

1. Average size of households	4.92 persons
2. Workers per household	1.32 persons
Single worker households	70 per cent
Two workers households	20 per cent
Three workers households	5 per cent
No worker households	3 per cent
3. Average number of children	2.14
4. Unemployment rate	21 per cent
5. Duration of stay—	
More than 15 years	75 per cent
Less than 15 years	25 per cent

6. Labour force (above 10 years)—	33 per cent
Informal sector	24 per cent
Formal sector	56 per cent
7. Household income per month—	
Less than Rs. 500	66 per cent
Rs. 501 and above	34 per cent

It is observed further that irrespective of formal or informal sector employment, the jobs are generally menial or low skilled indicating low levels of acquired urban skills among slum dwellers. The result is low incomes.

The following statement indicates the percentage distribution according to monthly income groups of slum households:—

Monthly income group (Rs.)	Percentage of slum households
Less than 200	12.12
200—350	28.01
350—600	38.58
600—1,000	14.14
1,000 and above	3.86
Not recorded	3.29

It may be seen from the above table that 79 per cent of slum households belong to low income groups with monthly incomes below Rs. 600. Median monthly income per household is Rs. 400. Another interesting feature which the above statement brings out, is that 40 per cent of the slum households fall in economically weaker section category and another 39 per cent in low income group category.

Further studies on the unorganised or informal sector of employment which forms a major part of labour force in the slums indicate that not only the incomes in this sector are lower than that of the formal sector of employment but that they also tend to stabilize at low levels and remain stagnant thereafter. Some studies of slums indicate that such phenomenon is observed for employees in the formal sector as well. In one such study it is observed that the average earning of a wage employee in the age group of 20–24 years is Rs. 267 per month which stabilises at Rs. 350 at the age of 30–34.

The stagnating income also inhibits the mobility of the slum dwellers. It has been observed in a number of studies that the majority of slum dwellers have stayed in the slums for over 15 years. The common notion that shelter is sought in slums by new migrants as a transient accommodation is thus not borne by these studies although it might be partially true.

Income Distribution of Households : Though there is no statistical data available regarding the income and earnings of the people of Bombay, a few surveys were carried out regarding the income-wise distribution of households in the city. For the purpose of this analysis the sample families were classified into four income groups. Firstly, the economically weaker section of the society was conceived to be one with a monthly income upto Rs. 350. This income group was further divided into two sub-groups *viz.*, upto Rs. 200 and from Rs. 201 to Rs. 350 per month. Secondly, the low income group was conceived to comprise those families who have a monthly income of Rs. 351 to 600. Thirdly, the middle income group covered the families having a monthly income of Rs. 601 to 1,500. This income group was divided into two sub-groups *viz.*, those having an income of Rs. 601 to Rs. 1,000 and those having an income of Rs. 1,001 to Rs. 1,500 per month. Fourthly, the higher income group was conceived to comprise those families with a monthly income of over Rs. 1,500. This income group classification accords with the classification adopted by the Maharashtra Housing and Area Development Authority.

As per the surveys carried out by various authorities, the Maharashtra Housing and Area Development Authority[1] has worked out the house hold income structure in Bombay which is given below:—

Income group	Monthly household income in rupees	Percentage of households	Ability to pay for shelter
1. Economically weaker section of society.	0–200 ..	7	15
	201–350 ..	12	30
2. Lower income group ..	351–600 ..	35	50
3. Middle income group ..	601–1,000 ..	25	115
	1,001–1,500 ..	12	250
4. Higher income group ..	1,501 and over ..	9	400

It is evident from the above statistics that about 35 per cent of the households in Bombay belong to the lower income group. The middle income group comprises about 37 per cent of the households. About 19 per cent of the households are in the economically weaker section of society, while only 9 per cent households form the higher income group. It is remarkable that the middle income group households form the largest single income group in Bombay. The preponderance of the middle income group is attributable to the fact that the earnings of majority of the factory workers and office-goers have now increased on account of the linking of wages with cost of living index. It may, however,

[1] M.H.A.D.A., Theme Paper for Seminar, January 1981.

be cautioned that the higher level of incomes is obviated by the tremendous rise in prices. The economically weaker section of the society comprises coolies, unskilled workers, domestic servants, street vendors, vagrants and unemployed persons. The lower income group which comprises 35 per cent of the households includes partially employed persons, semi-skilled labourers and low paid employees in offices, factories and shops. The higher income group which forms a small proportion of households covers supervisory staff in factories, establishments, traders and highly paid employees in public sector and commercial establishments.

Household Consumer Expenditure : The National Sample Survey Authorities conducted a sample survey of household consumer expenditure in Greater Bombay in 1977-78. The results of the sample survey reveal some interesting facts about the pattern of consumption of the Bombay people. The average consumer expenditure pattern as per the survey is shown below :—

Item	Monthly household expenditure (Rs.)	Percentage
1. Food	446.40	57.31
2. Clothing	47.05	6.04
3. Fuel and light	44.40	5.70
4. Other non-food items ..	241.10	30.95
Total ..	778.95	100.00

The above statistics lead us to the conclusion that food items form the largest proportion of the household consumer expenditure. Clothing accounts for 6.04 per cent of the household expenditure. It may, however, be pointed out that the expenditure on clothing might be underestimated. This observation is based on the fact that the clothing pattern of the people of Bombay is characterised by latest fashions and colourful clothing.

The Angels' law of expenditure conspicuously comes into operation in the case of low income group. As per this law the percentage expenditure on basic needs like food, fuel and clothing is higher in the case of low income group. The lower the income level, the higher the percentage expenditure on basic needs.

Some of the studies pertaining to factory workers in Bombay have indicated that the expenditure of the lower income group as well as the economically weaker section of the society exceeds their income. This leads to perpetual indebtedness on the part of the people belonging to this group.

Structure of Incomes : Two economists from Oxford, Mr. Heather and Mr. Vijay Joshi undertook an indepth study of Bombay with special reference to the problem of urban unemployment, income distribution and migration patterns in the city and the inter-relationship between these aspects of the economy of Bombay. The authors believe that the conduct of economic policy, has aggravated the employment problem, giving insufficient attention to the absorption and productive utilisation of the country's abundant supplies of labour resulting in stagnating incomes of the large section of the population.

The celebrated work of the authors : *Surplus Labour and the City, A Study of Bombay*, published in 1976, gives an indepth analysis of the structure of incomes in Bombay. The analysis is based on thorough research and scrutiny of official statistics. It is therefore felt necessary to give a brief account of the observations made by the economists regarding the structure of incomes in Bombay.

The earnings in the unorganised sector employment in Bombay are considerably below those in the organised sector. The lowest earnings in any activity recorded were being paid to workers in small hotels, *i.e.* Rs. 65 per month. Indeed, on such low incomes they would not be able to support any dependents. Though the employers are supposed to pay wages as per the Minimum Wages Act of 1948, the enforcement machinery for the Act is extremely weak and the workers are paid much below the statutory minimum. The *mathadi* workers and the metal porters are the highest paid unorganised workers. This is because they have an effective trade union.

There are considerable variations in earnings within the organised sector. The highest earnings (more than 350 rupees per month) were paid to workers in the partly foreign-owned pharmaceutical companies who pay high wages to ensure a high quality and committed labour force. Earnings in the cotton textile industry are also quite high for historical reasons. Trade union activity in the industry was instrumental in maintaining a high level of wages. Cotton mill wages are a benchmark for wages in Bombay. The textile dearness allowance, which provides 97 per cent neutralization of cost of living changes for unskilled workers, is paid by many other enterprises, and rates at the upper end of the range of organised sector wages clustered round the cotton mill level of Rs. 225 per month in January 1968. Public sector employment was on a broad band ground Rs. 160 per month. The wages of unskilled workers ranged from Rs. 130 to Rs. 390 per month.

Wages were relatively lower in the older more labour-intensive industries, such as paper, printing, hotels, cinema production and exhibition, glass, wood, cotton ginning, leather and tanning industry. The wages

were relatively higher in the capital intensive industries, *viz.*, engineering, chemicals and pharmaceutical. Cotton mills paid high wages for historical reasons.

In the unorganised sector average pay can be taken to be about Rs. 90 to Rs. 100 per month in January 1968. Wages of cotton mill workers inclusive of bonus vary between Rs. 237 and Rs. 270 depending on the company. Wages in the public sector, which employs about 33 per cent of the organised workers are around Rs. 160 per month. As for the rest, there is a dispersion of starting unskilled wages between Rs. 130 and Rs. 390. The majority of the workers in the private organised sector are in firms where the wages of the unskilled workers are between Rs. 180 and Rs. 250 per month. "Taking all these facts together, we estimate that the earnings differential between the organized and unorganized sectors is unlikely to be less than 100 per cent and could easily be as high as 150 per cent. If we also make some allowance for the present value of the employers' provident fund contributions and for the monetary value of various fringe benefits, we believe that 150 per cent provides the more likely figure." [1].

The cost of a worker to the employer is substantially greater than the worker's take home pay. This is on account of the employer's contribution to provident fund, medical insurance, privilege leave, etc.

Since 1968, the whole money-wage structure has shifted upward in pursuit of the cost of living index. By mid-1971, cotton mill workers and Government employees were getting about Rs. 30 per month more than the above-mentioned figures. Money wages in the unorganised sector also rose to some extent.

At the time of the *Lakdawala Economic Survey* [2] (1958-59), the working class cost of living index for Bombay stood at about half its level in 1968. The regularly employed unskilled workers in textile mill received around Rs. 95 per month and the lowest pay in the organised sector seems to have been about Rs. 75 to Rs. 80. The earnings in unorganised occupations were well below this level, around Rs. 50 per month. The occupations with average earnings above Rs. 100 included taxi drivers (Rs. 185), *panwallas* (Rs. 119), goldsmiths (Rs. 108), tailors (Rs. 106), barbers (Rs. 108), self-employed milkmen (Rs. 129), hawkers and small shopkeepers. The average monthly earnings of predominantly unorganised occupations such as, potters, washermen, newspaper boys were between Rs. 75 and Rs. 80. The average earnings of unskilled workers in the public sector were higher, between Rs. 80 and Rs. 90. As per the Lakdawala Survey, the ratio of women's earning to men's earning was 80 to

[1] Heather and Vijay Joshi, *Surplus Labour and the City*, p. 100.

[2] Prof. D. T. Lakdawala, *Work, Wages and Well-being in an Indian Metropolis, Economic Survey of Bombay* (1963).

90 per cent. As per the *Balsara Survey* conducted in 1963-64 the lowest regular wage in the organised sector was about Rs. 120.

As per the study of the Oxford Professors the wages of unskilled workers were Rs. 60 to Rs. 350 per month. Salaries in the public sector ranged upto Rs. 4000 per month and those in the private sector were much higher.

The numbers of relatively well-off income receivers were roughly one-fifth of all income receivers. Prices more than doubled, but only organised workers were cushioned against cost of living changes by the dearness allowance system. In the growing industries like engineering and pharmaceuticals unskilled real wages probably increased to some extent. In textile real wages were roughly constant. In other declining industries they may have fallen also. The distribution of the organised workers was changing in favour of the skilled intensive industries which could afford to pay higher wages. Real wages of organised unskilled workers in Bombay were roughly constant during the fifties and sixties. On the other hand the unorganised workers were increasing in number. It is very likely that without D.A. protection they lost in real terms.

Income per Head and Poverty : A somewhat systematic attempt to establish a poverty line was done by A. J. Fonseca in an attempt to calculate the need based minimum wages for industrial workers in various cities. This took into account the local cost of purchasing a prescribed diet and made certain conventional allowances for non-food expenditure. The requirements of a family of four, a male earner with wife and two children, in Bombay were calculated to be Rs. 240.88 in 1968. This meant a *per capita* expenditure of Rs. 60. As we have seen, many unskilled workers were getting less than this at that time although this poverty line is highly artificial and many people subsist with smaller incomes they do give some indications of the low level of living standards enjoyed by the majorityof the city population. The following statement gives *per capita* income in the surveyed households in Bombay as per the Lakdawala Survey and the Balsara Survey:—

Rupees per capita per month (Current prices)	Percentage distribution on persons		Persons per household	
	1955-56	1963-64	1955-56	1963-64
0—15 ..	7.3	6.7	6.9	5.9
15—25 ..	19.5 (26.8)	17.8 (24.5)	6.0	6.2
25—35 ..	21.5 (46.2)	15.0 (39.5)	5.9	5.9
35—50 ..	16.4 (64.7)	17.9 (57.4)	4.2	5.2
50—75 ..	14.6 (79.3)	14.8 (72.22)	4.4	3.8
75—100 ..	7.5 (86.8)	8.3 (80.5)	3.8	4.4
100—150 ..	6.7 (93.5)	9.0 (89.5)	3.1	4.4
150—250 ..	3.7 (97.2)	5.9 (95.4)	3.4	3.9
250 ..	2.8 (100.0)	4.6 (100.0)	3.7	3.8
Average ..	Rs. 56.8	Rs. 70.0	4.7	5.0

The households with a *per capita* income of less than Rs. 60 per month were below the poverty line. The most unskilled workers in the organised sector fall below the need based minimum. Comparatively the workers from the unorganised sectors are below the need based minimum in larger numbers. We conclude that while some organised workers live at levels below the need based minimum, a greater proportion of unorganised workers exist at even lower levels.

Ever since the studies mentioned above there has been a tremendous rise in prices. The inflationary trend is so conspicuous that part from short-lived aberrations the prices are rising at a galloping speed. The cost of living index shows a progressive rise. Consequently, the real wages of the working class have tended to remain constant, in spite of rise in money wages. It is a sad fact that though a section of the working class enjoys the protection of dearness allowance linked to cost of living index, the protection is by no means sure and certain. In fact, there is corrosion of real earnings of the salaried class which forms the majority of the workers in Bombay. The inevitable consequence is the decline in the standard of living of a large section of the population.

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सत्यमेव जयते

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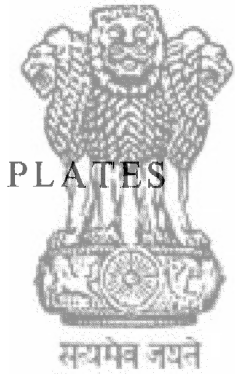
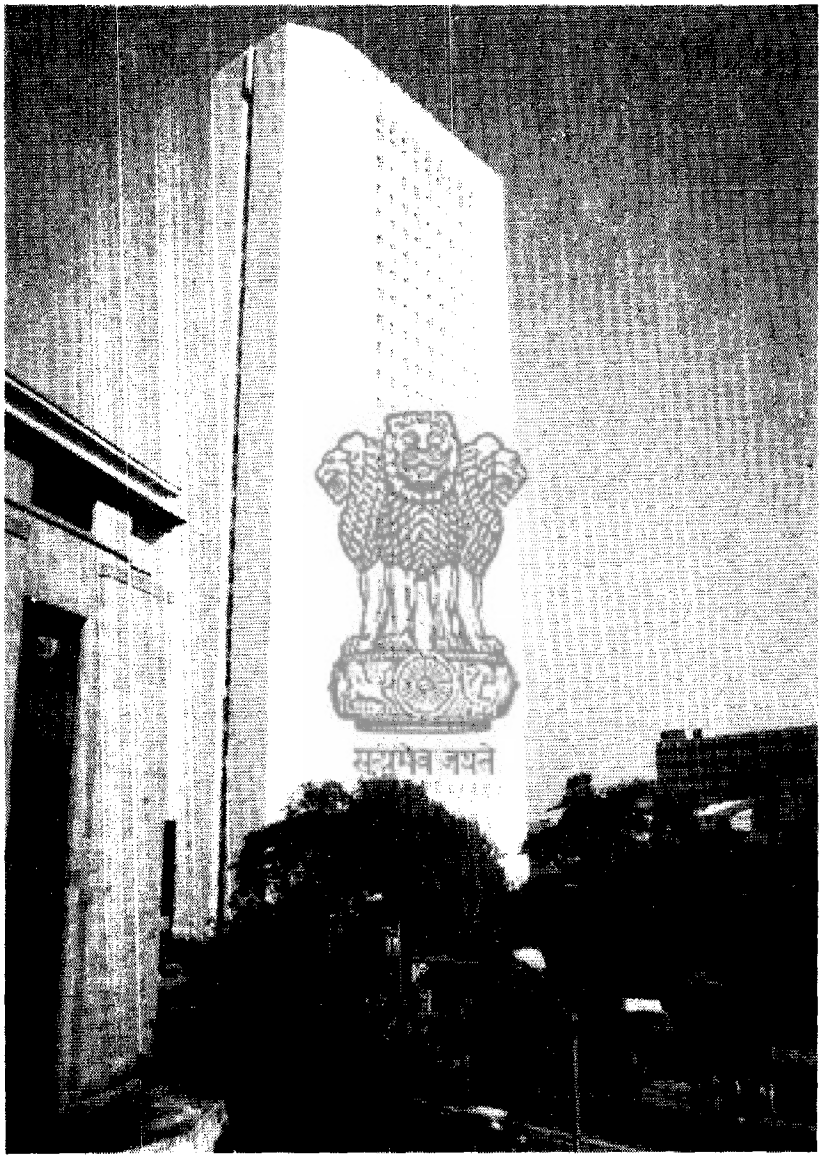


PLATES

Victoria Terminus, Bori Bunder

Western Railway Headquarters, Churchgate

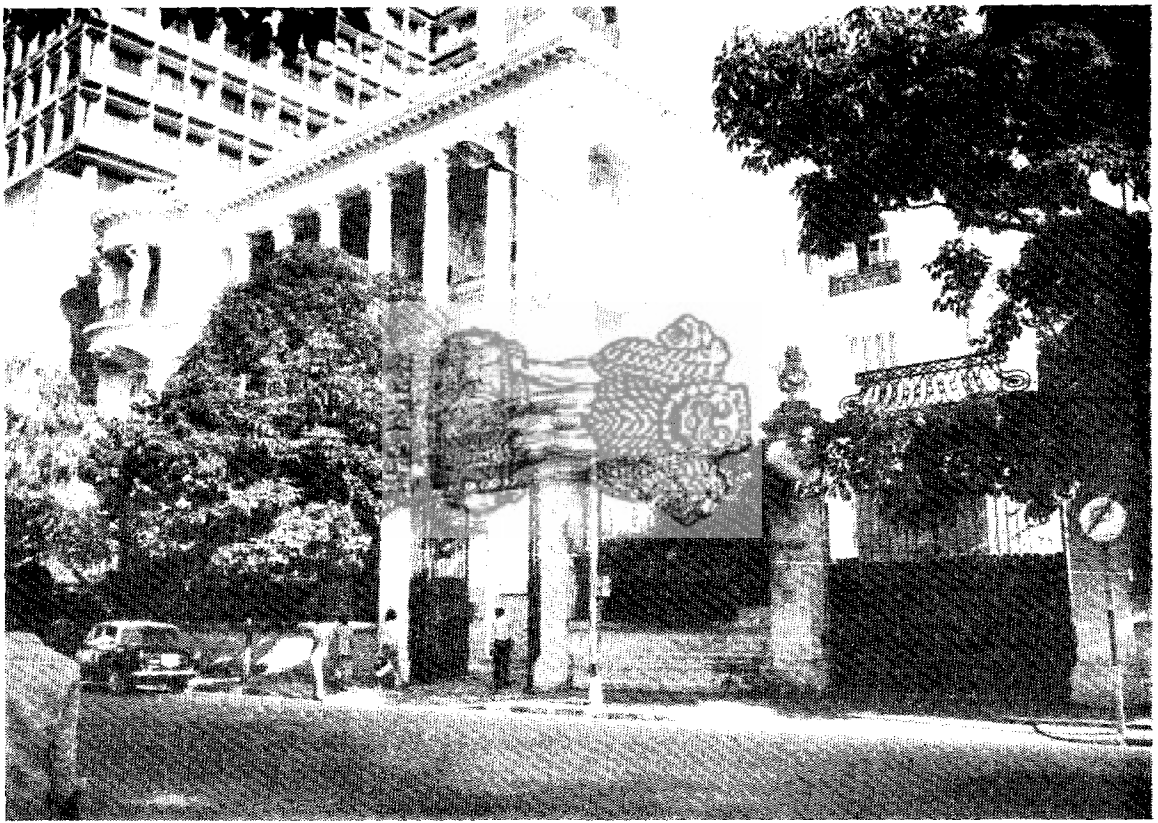
Reserve Bank of India, Main Building



Reserve Bank of India, New Building

Stock Exchange Building

Taj Mahal Hotel



Tata Palace

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