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THE DEVELOPMENT OF CAPITALISTIC ENTERPRISE IN INDIA



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THE DEVELOPMENT OF CAPITALISTIC ENTERPRISE IN INDIA

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PREFACE

RESIDENCE in any one of the principal oriental countries is bound to stimulate a western mind to consider the differences between his own and eastern civilizations, and the reasons for these differences. During a dozen years as an economist in Japan, India and China, a number of conclusions which I first formed tentatively have gradually become convictions.

One of these is that if economic forces play the important part in western countries which most thoughtful people attribute to them, they must be even more important in the Orient, because of the greater pressure of population upon the natural resources in those countries.

A second is that many of the striking differences between occidental and oriental cultures are adaptations of the same human clay to differing economic conditions. Since the opening and settlement of the New World, the West has been pressed in a new mould, leaving the East of to-day in a medieval cast.

A third is that detailed studies of the evolutionary movements now in process in several eastern countries would throw very useful light upon the origins and nature of the competitive system which has characterized the modern economic history of the West.

The corollary to these conclusions is that the much-needed understanding of contemporary problems in Asia requires careful study and appreciation of the economic conditions now underlying change in eastern countries, and of the effects of these changes on the traditional habits, customs and attitudes of their people. Such an investigation should be matched comparatively with the studies which have been made of the economic history during recent centuries of western Europe and America.

For many years, Japan and China have held the center of the oriental stage. Japan, a small nation, was rapidly becoming a Great Power, while China, a very large nation, was threatening to disintegrate. India, though rivalling China in size and populousness,

was the forgotten nation of the East, because her affairs were in the hands of the United Kingdom. With the War, India came into the limelight. Within the country, there were feuds between the Hindus and Mohammedans, between laborers and employers and between Indians and their European government. All these were closely related to the new economic forces stirring in the country. Yet until the investigations of the Indian Industrial Commission in 1916–8, no considerable study of Indian economic conditions had been made since the Factory Labor Commission's work in 1908. In 1926, the need for fuller understanding of India's economic changes, especially those having to do with the growth of capitalistic enterprise, led the government of India to institute a remarkable series of investigations into several aspects of Indian life. The Royal Commission on Indian Currency and Finance published a report and voluminous evidence in 1927; this was followed by a two-year investigation and report by the Royal Commission on Indian Agriculture, and a similar survey by the Indian Statutory Commission. In the meantime, the Indian Tariff Board had investigated and reported on several of the important industries, including cotton and steel manufacturing. Most recently the elaborate inquiry and the voluminous report by the Royal Commission on Indian Labour has added to the wealth of material for students of Indian affairs. The present study was undertaken in 1926 when only one of these Commissions had yet gotten under way. I regret that for the purpose of this study, only a few of the most general results of the 1931 decennial census of India are as yet available.

My work was generously financed by the Bureau of International Relations of Harvard University and Radcliffe College. To the members of this Bureau I am deeply indebted for the opportunity of over one and a quarter years for travel and study in India and for the time thereafter which has enabled me to prepare this study. Obviously the work of an individual, however assiduous, cannot even remotely stand comparison either in resources or results, with that of a Royal Commission or a Tariff Board. I have, it is perhaps needless to say, drawn abundantly and gratefully from the records of these governmental bodies. But this official material was not published until after I had returned from India, and subsequently in working through the evidence gathered by the Commissions it has been encouraging to discover that many of my own inde-

pendent, contemporaneously formulated conclusions were confirmed by theirs.

As an outsider, with neither Indian nor British ties, I have attempted to maintain a detached mind; though I am aware that this is an impossible attitude. I have also allowed myself occasionally to cast a ranging glance along the margins and background of my special theme, in order to see it both in the perspective of general economic history and in the comparative setting of analogous recent movements in China and especially in Japan.

. I have appended no bibliography, partly because my study has been based on observation as well as on reading, but also because Miss Vera Anstey's admirable book, *The Economic Development of India*, gives an excellent bibliography of the subject.

The study was undertaken through the interest and under the direction of Professor Edwin F. Gay of Harvard University, who has given constant encouragement, correction and criticism. While I am wholly responsible for the demerits of the work, these would have been far greater but for his friendly vigilance.

For assistance and courtesy in making my enquiries, I am deeply in debt to a large number of other persons, officials of the India Office in London, of the central and various provincial and local governments in India, and to a host of men and women, business men, labor leaders, laborers, missionaries, college professors and others, both Indian and Europeans, so numerous as to make the mere mention of their names impossible. For assistance in preparing the manuscript for the press, I am indebted to Miss Martha Anderson of the staff of the National Bureau of Economic Research, and to my wife, who has given much time to the reading of proof and to the making of the index.

D. H. B.

Washington, D. C.

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THE DEVELOPMENT OF CAPITALISTIC ENTERPRISE IN INDIA

CHAPTER I

THE COUNTRY AND ITS PEOPLE

DURING the past century and a half, the factory system has revolutionized the life of the Occident and it is now slowly but surely transforming that of the Orient. In India a close-knit social order, adapted to conditions of population pressure upon resources such as the Occident has never known, and so effective as to have withstood for ages the onslaughts of every sort of evil to which mankind is heir, is surrendering before a new type of economic organization. The occupational division and social stratification of the self-sufficing rural villages are gradually giving place to a new grouping of the people based upon modern transport, commerce and industry.

The use of mechanical power in the securing and fashioning of raw materials and in transporting persons and products, as well as in communication between distant places, is causing the old order to disintegrate. Easy-going, self-sufficing agriculture and handicraft are being forced out by a system of high-speed specialized machinery and communication.

The present contact between East and West seems bound to endure. So long as intercourse depended upon occasional military expeditions and upon the old methods of transport, relationships were superficial. The spears of Alexander and the swords of the Crusaders found the marrow of a few thousand men, but the hundreds of millions knew of their exploits only as nursery tales. Indian spices enlivened the feasts and Indian textiles adorned the persons and palaces of European princes, but their production long remained a mystery to European workmen. The new relations are of a different sort. Because of the cheapness of carriage and the advantage of exchange, external commercial relations appear permanently established. The numerous Crusaders who settled on the shores of the Mediterranean and beat their swords into balances to weigh western

goods against eastern, started the movement which passed through the stages of commercial awakening, search for the western route to India, the discovery of America, the expanding market for European manufactures, the revolution in transport and industry and the present amalgamation of East and West. A new Orient—in fact, a new world—is replacing the old, and the factory system is the skeleton upon which it is gradually and very irregularly taking form.

The present study undertakes to trace the development of capitalistic enterprise in India and to explain the more important variations which have marked its growth.

Geographical Setting

The economic and cultural development of a region depends in the main upon two factors: its geography and the numbers and quality of its people. India lies about half in the torrid and half in the north temperate zone.[1] Cape Comorin begins at 8° and the furthest tip of Kashmir extends to 37° north latitude, while Sind begins at 67° and Burma extends to 103° east longitude. Thus India is about 2500 miles east and west and about 2000 miles north and south. It lies in a crude triangle with an area about 60 per cent that of continental United States. Shut off from its neighbors by almost impenetrable mountains and by seas, the country has every altitude from that of a long coast at sea level to the Himalayan crest which forms its northern border. Hence it also has every variety of temperature from the scorching sands of a wide desert area to the perpetual snows on which man has never trod; and every degree of annual rainfall from the scant three inches of Sind to the nearly forty feet in some parts of Assam.

Variety but not abundance characterizes its material resources. The tropical heat tends to induce plant growth at all times of the year but much of the soil is infertile and moisture is often inadequate. Peninsular India is geologically old and most of its surface has been washed or worn down to relatively poor strata. Yet about its coasts and along its rivers are deposits of alluvial soil which produce good crops. More important economically and culturally is the rich alluvial plain lying just to the north of the tropic of Cancer and comprising the plains of three great river systems, the Ganges,

[1] For an excellent treatment of the regional and economic geography of India, see L. Dudley Stamp, *Asia* (1929), pp. 166–356.

the Indus and the Brahmaputra. Of the total area of British India, about one-third is now regularly sown. When fallow land and half of the poor land somewhat inaccurately described as "culturable waste" is included, roughly half of the total area is arable, but not over one-third of the total area is good land.

Mineral resources are fairly abundant. There is a goodly supply of medium grade coal in Bengal and Bihar and Orissa, and a similar amount of oil deposits now well developed in Burma. Their concentration in restricted areas involves great difficulties of transport over the wide stretches of the country. Iron is plentiful and of very high quality, constituting one of the richest and most easily worked deposits known, and fortunately located about 125 miles by rail from the principal coal fields. In the Mysore State are valuable deposits of gold and elsewhere the country contains salt, mica, manganese, some wolfram, silver and rubies.

The interior of India is not easily accessible. Unlike Europe, India has very few indentations and few rivers navigable for large vessels for any considerable distance. Bengal has numerous bayous suitable for inland transport in flat-bottomed craft, but ocean-going vessels experience great difficulty in ascending even the Hooghly, some sixty miles to Calcutta. Most rivers can be used only in their lower reaches, and then merely for small junks. In earlier times the larger rivers were much better than nothing and made shipping between many places possible; but with a few exceptions, the Indians have lived for centuries a great interior people, each small community inaccessible to the others, and because of impassable mountains or wide oceans, the whole inaccessible to outsiders.

In early times, contact with Europe involved a long journey to the eastern end of the Mediterranean and the transfer of cargoes and passengers to land conveyances and back again, including the passage of many regions likely to be hostile. And then, in the middle of the fifteenth century, the Turks closed the road. Even after the Renaissance in Europe and the exploits of the great navigators, India was very unfavorably located for making contacts with the rest of the world. Until the completion of the Suez Canal in 1869, the usual route to Europe was the long one by way of the Cape of Good Hope, which in 1850 still required some six months to navigate. The fast sailing vessels of a century ago, to which American forests and Yankee ingenuity contributed their share, served to

overcome partially the inaccessibility of India and her neighbors. Finally, through the steel steamship and the Suez Canal, not to mention the electric telegraph and ocean cable, the aëroplane and the wireless, the natural isolation of the country from Europe has, to a great extent, been overcome.

Climate. The climate, for the most part, is exceedingly warm and provision of shelter correspondingly meagre. Where soil is rich and moisture plentiful there are abundant growths of plants, and the crop-producing season is long. But dependent upon the wind—a notoriously fickle element—the amount of moisture varies so widely that one year may bring abundance and the next, famine. Rainfall is derived from "monsoons" which result from the carriage, during certain seasons, by the southwest winds, of moisture-laden air from the Indian Ocean and the Bay of Bengal up to the highlands of the Himalayas where the higher altitude causes precipitation. The main or southwest monsoon lasts from June to September and provides about 90 per cent of the annual rainfall. A later monsoon, resulting from northeast winds carrying moisture from the Bay of Bengal, brings rain to the southern part of the peninsula in the late autumn. The chronic scarcity of water in much of the country is aggravated, especially where population is most dense, by the severe recurrent droughts. Any region whose annual average is below forty inches is in danger of crop failure. A country with steady weather conditions or control through irrigation can standardize its customs and maintain a stationary population, but in India, years of plenty were long followed periodically by years of drought and starvation. Since the country has been predominently agricultural, nearly all the wealth coming from the land, and about three-fourths of the people dependent in some way upon it, poor crops and famine are serious. About twenty per cent of the land now under cultivation is irrigated. Ditches and "tanks" or ponds have been constructed since time immemorial. There is also much irrigation from wells, the water being drawn by bullocks.

Population. The primary fact in all older Asiatic countries is the pressure of population upon the means of subsistence and herein lies the essential difference between them and new countries like the Americas and Australia. It has modified the physical and mental characteristics of the people and been a chief influence in the formation of their civilization.

The average population is 195 per square mile (247 in British India) but several areas in these valleys have densities of 600 and a few rural areas of 1000 persons per square mile. Five hundred persons per square mile is not unusual in the well watered alluvial areas. These figures are nearly equal to the average densities of the most thickly populated countries of the world, England and Belgium, which live largely by industry and commerce. They are not very high, however, as compared to those of Japan, where an agricultural population of 1200 per square mile is not uncommon. Because of poorer land and less certain rainfall the saturation point is reached in India with a sparser population. Several European countries, including Italy, Holland, Germany and Switzerland, have a larger number of people per unit of area, than India, but not per unit of resources.[2] Many Westerners imagine that in the oriental countries the great population can be accounted for only by abnormal increases, but the important factor is the long-continued existence of a highly developed civilization. Only in the last few decades has a rising standard of living and greater personal opportunity resulted in some decrease of the birth-rate, probably through the postponement of marriage and the rudimentary practice of birth-control. In the period before education of women was considered necessary, it was customary in all countries for girls to be married much earlier than now. Physical and mental maturity being attained, it was only reasonable that marriage should occur at any time after fifteen years and that a girl should be considered independent at eighteen. Moreover, a tropical climate causes earlier maturity of plants, animals and human beings so that an Indian girl is as fully developed at fourteen as a European at sixteen. Twenty-one now seems very early for a young man to marry, but when agriculture was the almost universal occupation it was not too early. With these differences in mind, it may be said that oriental people marry at about the same ages as Occidentals used to. There are differences in custom, which we shall discuss later, but they do not result in higher birth rates than were usual in Europe less than a century ago. Births and deaths are registered in nearly all British

[2] Populations per square mile at the last census were:

Belgium	658	Italy	316
England and Wales	649	Germany	311
Holland	536	Switzerland	236
Japan	320	India	195

India and during the decade ending 1926 the average rates for registration areas were less than the rates for England, Scotland, Germany, Italy, Spain, Austria or Holland during the period 1861–1875.[3] Also India's death-rate during the seven years 1920–1926 was just equal to the average rates in this group of countries during the decade 1861–1870. The total population of the country in 1931 was 353,000,000. While the gross increase between 1872 and 1921 was nearly fifty per cent, much of this was due to the addition of territory. The net corrected increase for the fifty years ending 1921 was approximately twenty per cent. Between 1921 and 1931 the increase was 10.2 per cent.[4] The population of the United States increased by fifteen per cent during the decade ending 1920 and in spite of the restriction on immigration, by 16.1 per cent between 1920 and 1930. The proportion between rural and urban population in India also changed very little during the fifty years ending 1921. The urban percentage was 10.2 in 1921 as against about 8.5 in 1872 and 9.4 in 1911.

Politically, about two-thirds of the territory and over three-fourths of the people are directly under the British (Indian) government, while the remaining area and people are within States ruled by Indian princes whose positions are guaranteed by the British. Those States are widely scattered throughout the British territory and the country is in most respects practically a unit. The laws of the Indian States differ from those of British India no more than do the laws of our separate states and a certain economic unity prevails. Railways, for instance, cross these borders as freely as they cross state lines in America.

The peoples of India represent a diversity of races, languages, cultures and religions. Of the three main original stocks, all are still found in a few cases nearly pure but they have become mixed in almost every possible proportion and all have been affected by

[3] See Ogg, *The Economic Development of Modern Europe*, p. 348.

[4] By decades the real increases have been:—

1872–1881	1.5 per cent.
1881–1891	9.6 " "
1891–1901	1.4 " "
1901–1911	6.4 " "
1911–1921	1.2 " "
1921–1931	10.2 " "

Widespread famines kept the figures down during the eighth and last decades of the century and the influenza epidemic of 1918–19, taking some 13,000,000 persons, reduced them for 1911–1921.

somewhat similar conditions and cultural ideas. There are the dark Dravidian race, which has been in the country longest, the Indo-Aryan race which supposedly entered from the northwest, and the Mongoloid stocks resulting from mixtures of Mongolian peoples who entered around the eastern end of the Himalayas. The Dravidians are dark, often coal black, and while their hair is not kinky, it is commonly wavy. These broad-nosed people inhabit especially the south and certain somewhat inaccessible forest and hill tracts. In Bengal they are often mixed with Mongolian stock.

The Aryans have long been dominant. Tall, with sharply chiseled features and long heads, they are supposed to be related to the Europeans. Until mixed with indigenous blood, they have fair or light complexions. In Kashmir and the northwest, skin, hair and eyes are frequently as light as among south Europeans.

The Mongolian or mongoloid types are shorter in stature. Less prevalent than either the Dravidian or the Aryan, this type is universal in Burma and predominates in Assam and Bengal in all except some of the higher castes. The Bengali are a distinct type and differ considerably from both the Mongolian and the Dravidian stocks of which they are generally a mixture. Often possessing a mercurial disposition, they have been a notoriously difficult people for outsiders to govern.

Taken as a whole, the people are smaller framed, lighter boned and in every way less sturdy physically, than Europeans. Only the Punjabis compare favorably in physique with the people of any European country. A large proportion of the Indian masses have been so undernourished in youth that their bodies are not well developed. The Hindu refusal to kill and eat the lower animals has also had its influence. Although strongly convinced of the spiritual superiority of people who eat only vegetables, many thoughtful Hindus believe that it is because Englishmen ate meat that they had the will to conquer, and the energy to control, India. Some of the social customs, such as early marriage, have contributed to the same result, and disease has had a damaging effect. Climate doubtless has been an important influence. In cold regions people become accustomed to braving and conquering the elements, and generally place great store upon physical vigor and courage. Hot climates give rise to different practices and ideals. The most obvious way to conquer heat is to seek the shade of a friendly tree or

rest within a thick-walled mud house—not to brave it in the open, as the northerner would brave the cold.

This difference in emphasis upon bodily exercise is also illustrated by the various peoples of India, for in the cold north and northwest dwell larger, hardier people, given to physical exertion and combat, and more ready to stand up to hard labor or physical punishment, than are the residents of warmer regions such as Madras and Bengal. Bodily prowess has been a natural ideal in the European climate and has contributed much to industrialization and other forms of material progress. The opposite ideal, which was just as natural in India, is a factor in its slow industrialization.

Unfortunately the health of the Indian people is poor, causing direct economic loss and opposing economic productivity and progress. The death rate is high, especially among children. Furthermore, whole communities are occasionally decimated by pestilence and hosts are rendered inefficient by lingering illnesses.

The causes of this low state of public health are many. Medical men differ widely as to which influences are most to blame but it is agreed that ignorance and poverty are mainly responsible. Some lay a large share of blame on the climate, while others claim, with perhaps more reason, that given sanitary surroundings, proper food and shelter, and the observance of proper rules of hygiene, there is no more need for bad health in warm countries than in cold. Certainly many deaths are due to preventable causes. The following table shows the causes of death per one thousand of the population in 1926 in the registration area: [5]

Cholera	Smallpox	Plague	Fevers	Dysentery	Respiratory Diseases	Injuries	All Others	Total
0.57	0.49	0.81	15 57	1.06	1.57	0.39	6.30	26.76

Some of these diseases, like the first three, appear in epidemics which are particularly difficult to control in the poorer sections, especially of cities. Cholera is disseminated by water and food and is often carried by flies. The people, unfamiliar with the germ theory of diseases, take either no, or wholly inadequate, precautions against them.

[5] *Statistical Abstract of British India*, Sixth issue, p. 387.

It is claimed that plague, which is carried by a rat-flea, was absent from India for some sixty years prior to about 1896. While the figures have been fairly low recently, there were 877,788 deaths from this cause in 1917 and 1918. This disease is also particularly acute in the poorer sections of the cities, where the poor mud houses serve as nesting places for rats. The Hindu refusal to kill these vermin aggravates the situation. Nearly twelve million persons died of plague during the three decades 1896–1926.[6]

Smallpox is also very destructive. As in China, it is practically endemic in India. However, as vaccination is becoming more and more accepted, this disease is gradually coming under control. Most serious of all is the group classed as "fevers"—malaria, typhoid, and pulmonary tuberculosis. Influenza, which in 1918 brought the death rate up to 62.46 per thousand for British India, and to 128 for such places as the native city of Agra, is included in this group. As large a proportion of Indians die of these diseases as of all diseases combined in the countries of advanced regulations.

A good deal is said by some Europeans about the wide prevalence of venereal disease in India. Members of a British Social Hygiene delegation in India estimated publicly that it was four or five times as prevalent as in Great Britain. A recent book also speaks of "the lack of sexual restraint" and of venereal disease as being very common.[7] Physicians with long practice in India differ on these matters and I am inclined to the more conservative view. This is just the sort of question to which the half-hushed hearsay of an outside race gives the most misleading replies. Everyone, and most of all, Anglo-Saxons, owing to the restrictions which they place upon the discussion of sex, are ill-prepared to estimate such matters in a different race. Customs which are not understood are generally interpreted as allowing for the removal of most of one's inhibitions. But it seems unlikely that the villages are badly afflicted with venereal disease. The regions most infected are without doubt the great cities, such as Calcutta, Bombay and Madras, where many thousands of young men, away from families, are congregated. But these large centers are young and it is difficult to believe that they have contaminated even a large share of the

[6] *Ibid.*, p. 392.
[7] Anstey, *The Economic Development of India*, p. 69.

countryside. Even the industrial centers are not nearly so bad as they are imagined by many Anglo-Saxons. A Scottish physician in one of the largest Calcutta jute mills has concluded that neither syphilis nor gonorrhea are very prevalent among the hands and their families. In 1926 he handled 24,000 new cases out of which he discovered less than one per cent suffering from the two diseases. An American missionary physician who grew up in India but was educated in America, where at a later period he specialized in the study of these diseases, is of similar opinion. He says there is no more evidence of venereal disease in the Indian population than in the American. He has been practicing for many years in one of the up-country cities where, presumably, "lack of restraint" would have done its worst.

The government's efforts to improve health conditions have resulted in decided progress. The original task of the Indian Medical Service was to look after the army, and its members are still given military rank though this combination cannot be said to be a happy one. Their tasks have been extended until a very considerable hospital service is now provided at various centers throughout the country; but these reach only a small percentage of the population and a small amount of money is expended on them. In 1926 there were in British India 4,205 hospitals either operated or aided by public funds.[8] The total expenditure on medical work and public health of the central and provincial governments was Rs. 59,-782,323 in 1926–1927.[9] While the Indian medical and sanitary service has accomplished much, it has only begun on the real problem. A prominent health officer stated publicly in Calcutta during the early months of 1927 that, "England has been pretty well provided for since the law of 1872. In Bengal, in 1914, there was no health officer or sanitary inspector outside Calcutta. There is now one health officer per one million of the population." He added that what India needs is a Public Health Act.

There is a striking difference between what has been done along this line in India and what has been accomplished in Japan. In spite of British rule, India has remained more like China.

Intellectually, the Indian community ranks high in natural endowment but it has been decades, in some respects centuries, be-

[8] *Statistical Abstract of British India, Sixth issue,* p. 395.
[9] *Ibid.,* p. 138.

hind the European in the reception of modern civilization. No such contrast existed prior to the development of modern science and industry in Europe. India has remained in the "theological" stage of intellectual development later than Europe and America. But it may well be held that the great cultural changes in the West have arisen because of the stimulations of new material conditions and contacts.[10] It has been usual for Europeans, and especially for Americans, to consider all Asiatics as innately more conservative and less open to change than themselves. While conditions have been so different as to make a conclusion impossible, this is probably untrue. Differences which still exist appear rather to arise from differences in social inheritance and physical surroundings. Even between the United States and the older European countries, such as rural France, the same difference is very marked. One of the best informed and most successful officials in India, Dr. Harold Mann, recently Director of Agriculture in Bombay Presidency, writes of the most conservative of all Indian groups, the farmers, as follows: [11] "After long experience of Indian farmers in many parts of India, I think that this idea of innate conservatism among the rural classes is not correct, and possibly they are really less averse to change than a very large proportion of the farmers of western countries." It was long supposed that the Japanese, who followed the same policy of exclusion as the Chinese, were equally "unchanging." But since they came into contact with a really dynamic situation, that is, with modern industry and commerce, the Japanese have achieved as great "progress" as has any people in a similar length of time. Every people has its particular character, but similarities are far more marked than differences. The best clue to the differences, both physical and mental, between the Indian and the western peoples, is to be found in their respective social and economic situations. With meagre resources it is necessary to produce a close-knit set of economic and social practices

[10] Only when an American contrasts the experience of himself and his ancestors with those of any typical oriental community, does he realize how change of thought has been stimulated. Japan furnishes another excellent object lesson. There is no comparison in mode of thinking between the Japanese who have left the old villages and colonized the Hokkaido and those who have remained behind. Those in the new environment are literally compelled to adopt new ideas and it soon becomes a habit. See Mrs. Anstey's remarks on this topic in relation to India; *The Economic Development of India*, pp. 50–51. Also her references to Müller-Lyer, *The History of Social Development*, pp. 310–315.

[11] Dr. H. H. Mann, in *Annals of the American Academy of Political and Social Science*, CXLV, Pt. II, p. 80.

and then to retain them at all cost. Only thus can civilization endure. As compared to Asia, America is even yet a frontier. Europe's sparser population before the Industrial Revolution, and her access to great outside markets since that event, have also made change much easier there.

CHAPTER II

INDIGENOUS ECONOMY AND CULTURE

WHEN western traders first came to India in number, they found her people organized in a rigid economic and social system, the unit of which was the agricultural village. Because of its long continued existence and the peculiar conditions under which this culture had developed, the fabric was more closely knit than in any other country. Though often weakened and in some places practically swept away, the frame-work of this social life and organization remains and functions today.

The villagers were divided into castes and within the castes were "joint" families—grown brothers and their families—who often owned property in common. The bullock cart was the chief means of transport and there was very little travel. A family lived in the same village for tens of generations and left it only for occasional marriage excursions or religious pilgrimages. Except for purchases on such expeditions, it depended upon the village for its entire living. All but a fraction of the people carried on some farming. Nevertheless, skilled services and the manufacture of various articles were important and distinct callings. Every village included within its bounds, besides farmers and priests, a number of artisans whose inherited occupations were to make up goods for local requirements.

The land was held under a variety of tenures, in some places by the individual peasants, in others by the larger individual landlords, in others by a group in common, and in still others by a great overlord or *zemindar*. In so far as peasants were tenants, their occupancy was generally fairly secure.

The farms were small, varying in size, according as the district admitted of irrigation and intensive farming, or was dry and infertile, requiring extensive cultivation. The techniques of seed selection, fertilization and cultivation were as undeveloped as in Europe before 1750 and much of the agriculture was really a species

of dry-farming with only the surface of the earth well pulverized. The agricultural methods and crops were rather nicely adapted to the general situation. Since the land was so poor or so dry, a larger farm than could be operated by hand labor was required, so animals were necessary; but they had to be such as could live on a small amount of relatively poor fodder. The light Indian cattle, already adapted, even in color, to the desert, were well suited to these conditions. Farm implements, accordingly, had to be light and cheap.

Modern methods of agriculture can be introduced but slowly. In some lines, such as the selection of seed and the use of artificial fertilizers, much can be done; but some of the best trained and most enthusiastic advocates of reform find its realization exceedingly difficult.

As between farmers and artisans, and among the various artisans, there was a somewhat elaborate division of occupations based mainly upon caste. Each kind of work was hereditary and each craftsman or menial inherited the right to work for certain families. The number and variety of artisans in a village depended upon the part of the country in which it was located and its particular conditions. Life was simple and there was need only for a smith, a carpenter, a potter, a washerman, a barber, leather workers, often a weaver, a carder, always a watchman and the menials. These artisan families, together with the priestly Brahmans, received their incomes, not in cash and not for each item of service performed, but in produce of the fields and for service performed over a period of six to twelve months. In some cases they were paid a given share of the produce, in others a fixed weight of certain grains, while in still others they received the use of so much land. A family's bill was calculated roughly on the basis of the work to be done. For the washerman it depended on the number of adult women in the household and for the barber on the number of males old enough to be shaved. The payment to the carpenter and blacksmith depended upon the number of plows, or "teams" which a family employed.

Simple raw materials which were usually close at hand were used. Wood, which grew within the village borders, was the principal material for buildings, furniture and implements. Small deposits of iron were rather widely scattered throughout the country, although for the needs of individual villages, small quantities, essential for plow-

points, might have to be brought from a distance. Cotton was produced almost everywhere and silk and woolen fibers in several regions. Thus very little transporting of either raw materials or finished products was necessary. Since most goods were produced, fashioned and consumed in the same village, only a small amount of trade was conducted in local markets, which drew goods and purchasers from a number of villages, and, to some extent, from distant lands.

Consumption goods were few and simple, and were worn out before being cast aside. The essentials of producers' goods were also few. Simple agricultural equipment and the hand manipulated tools for manufacture were all that were known. Even wind-mills and water-wheels were seldom employed. The sickle and plow, the saw and chisel, the spinning-wheel and pit-loom, were made of a trifling amount of material in a very short time, but sometimes gave service for generations.

The hand-workers of old India were fairly efficient, deriving skill from a family and caste heritage of centuries. Their religion taught them that their occupations had been bequeathed by Heaven and that they really "labored with the gods." This was a means of life which had been given by a wise and beneficent Being and to forsake it lightly would be worse than treason and sacrilege combined. The son followed faithfully in his father's footsteps.

As the craftsman and consumer dealt directly with each other, and the latter commonly furnished his own raw materials, the opportunity for fraud was very small. This was especially true since the maker and consumer were close neighbors and the village elders made it a business to investigate and punish all cases of unfair dealing. Middlemen's profits were excluded and there was no glutting of the market with its consequent periods of unemployment.

Using the same simple tools and raising similar animals—cows, bullocks, camels, donkeys and pigs—the villagers lived from generation to generation with little change. Rice was grown where rainfall or irrigation provided sufficient moisture, while other crops, such as wheat, barley, the millets and cotton, occupied the dryer uplands. The only break was an occasional catastrophe, an invasion from the land-hungry hordes behind the mountains, or the disturbance caused by drought, bringing hunger and a smaller population of both cattle and men.

The few cities of political, religious or commercial importance constituted the only exception to this rural life. The princely courts took a generous share of the national produce and supported a large number of officials, favorites and satellites in comparative splendor. Most of the products consumed were quite different from those used in the villages. This court demand, together with that of wealthier merchants and landowners and of the common people when on pilgrimages, besides a certain quantity of exports to neighboring lands, employed a very considerable group of merchants and hand manufacturers. Fine artistic products were turned out by a number of highly skilled craftsmen, and financing and marketing was looked after by a class of merchants. In this high grade industry there was some direct production and sale by independent craftsmen but merchants were apparently influential in almost every line. The craftsman was commonly dependent upon the merchant for direction as to what to produce, for capital and for marketing. Although many of the goods were sold near home, such for example, as the cloth produced in Benares or Surat for sale to the local pilgrims, artistic specialties required careful judgment and real marketing ability, besides the tying up of considerable wealth in raw materials during the long manufacturing process.

Such, in broad outline, was the frame-work of economic and social life which dominated old India and has been handed down, somewhat modified, to the present. Within this system certain attitudes, customs and institutions, which have had great influence upon economic progress, were peculiar to India, or to the oriental countries in general. Most important were the religious interpretation of life, the attitude toward women and early marriage, the family and caste systems.

The Religious Attitude toward Life

Indian intellectual leaders have long held certain guiding philosophical ideas and the country has differed from modern Christendom in that its outstanding thinkers were among its religious leaders. There has been no such break between faith and reason as in the Occident and this philosophical mysticism has trickled through in some degree to the very lowest ranks of the people. Yet, unlettered and circumscribed, out of touch with all that modern scientific and historical research has uncovered, and imbedded in age-

old conditions and customs, the ordinary people live by a set of so-called religious ideas, which an intelligent modern can class only as superstition. Even the most intelligent Brahman often holds to beliefs which are out of date in the modern world.

The popular religion is to some extent an adaptation to environment. A poor man, driven always to laborious toil for little reward, and with famine hanging like a Damoclean sword above his head, must find hope somewhere. His only chance seems to be in spiritual victory.[1] Sailors who live in the presence of death are proverbially superstitious. The position of the Indian peasant, always threatened by drought and famine, has been similar.

Since unpleasant or unfortunate occurrences are generally accredited to the displeasure of some local spirit, it is believed that they may be warded off by appeasing the responsible gods or godlets. The sacrifice of animals, out of which the central doctrine of Christian theology seems to have sprung, is still carried on in crude form. Some five hundred years before Christ, the great Buddha led his protestant movement against this and other evils which had grown up, but the old sacrificial practices remain among a large part of the lower classes. Drought, flood and crop failure are visitations of the gods, and diseases of men and animals are placed in the same category.

Closely connected with this religious thought is a lack of ambition for economic and financial success, again largely the outcome of the economic conditions which have produced a veritable philosophy of poverty.[2] In the first place the strenuous life does not pay the same returns. In new countries like America or Australia, where a virgin continent awaits development, it is reasonable that ambition for material gain should be prevalent and strong. In this environment there is a possibility, in fact a probability, of realization, while in conditions such as have prevailed for centuries in India and in China, the only outcome of ambition is disappointment. There, to make a boy ambitious for material success is to ruin his life. The philosophy of resignation was as natural and as sensible in the old countries of Asia as is the philosophy of the strenuous life in

[1] Compare Simkovitch's interpretation of Jesus' philosophy in terms of the condition of his time. *Toward the Understanding of Jesus*, New York, 1923.

[2] Opposite conditions prevailing in the United States have produced there a philosophy of wealth. Such only can it be pronounced when compared, for instance, with the intellectual system of the Pilgrim Fathers.

the newer countries of rich resources. But however rational it once was in relation to life as a whole, this attitude has always been deadening to economic progress; and with the opportunities provided by modern science and modern business it no longer fits the situation.

This religious conservatism is expressed also in the doctrine of *karma,* the belief that the individual's present lot in life is the inescapable result of his actions in earlier existences. This teaching has appealed to the Indian's reason as well as to his sense of justice. It has been a great bulwark against revolution but, undoubtedly, also against social change or reform. If a man believes that the powers behind the universe have placed him just where he deserves to be, he is in no mood to try to change his condition.

The Mohammedan doctrine against the taking of interest, paralleling the Christian teaching on the same subject, has also tended to put a damper on ambition and to hinder the creation of capital. While this teaching has lost its hold in some sections of the country,[3] it is still a powerful factor against industrialization.

Beliefs as to the sacredness of animal life, especially of the cow, have also been very costly but not to the extent which some western writers believe. Indian ideas of animal husbandry correspond to those of Europe in the 16th or 17th century. There is an average of about two and one-half cattle per family of five. These animals furnish milk and when sufficiently fed, do all the work in the fields and a large amount of transporting. The small Indian farm is ordinarily too large to operate by hand methods but too small and unproductive to employ or support horses. Small cattle eat only a little cheap food and much more than pay their way.[4]

[3] See Darling, *The Punjab Peasant in Prosperity and Debt,* p. 212, n. 5.

[4] A "practical agriculturist who has spent many years in personal contact with Indian agriculture" quotes with approval a calculation purporting to show (*Round Table* for June, 1925, pp. 525–6) that the loss on cattle in India exceeds four times the land tax paid. This conclusion is reached by first supposing that there are now 22 per cent more males and 12 per cent more females than are required for draft and dairy purposes The author then calculates the cost of feeding each animal at Rs. 72 per year. He thus arrives at a stupendous total, equivalent to $571,536,000.00 as loss per annum.

Such statistical computations may well be doubted He must be a wizard indeed who, in the great variety of conditions prevailing over India, can reliably state whether 8 2 draft animals could do the plowing and hauling which is now done by 10. Indian agricultural implements and wagons are nearly always made to be drawn by two animals and the average-sized farm in provinces which include over half the cultivated area is under five acres. Since this writer would allow one bullock to each five acres, he must expect farmers to work out some coöperative arrangement by which several would use the same team. In the United Provinces, whose cultivated

Moreover, since the keeping of certain cattle is a part of the Hindu religious code, a portion of their expense may be charged to keeping up the morale which binds society together. Analogous to this expenditure is the large sum spent on preaching and ritual in Christian lands which is not usually regarded as directly adding to wealth. Yet it may well be contended that such expenditures give fair returns.

The Position of Women

On the question of woman's position, there is almost hopeless divergence of attitude between East and West; and it is difficult for an Occidental to understand the actual relations existing in the Orient, even in the rare case when he knows what they are.

India's attitude towards women has had an important effect upon economic progress. Of the three possible ways of treating woman, namely, to set her on a pedestal, to make her an equal and a companion, or to make her subservient and so put up with her as a more or less necessary evil, India and the other oriental countries in general have inclined toward the last. Before marriage a woman is subject to her father, after marriage to her husband. But generalization is impossible, for customs vary with classes, such as the priestly, the military and the agricultural, and they differ only in degree from those prevailing until recently in western countries. The attitude toward women in India is perhaps best illustrated by two customs, the *purdah, i.e.,* the seclusion of women, and early or "child" marriage.

The Mohammedan invasions began at the end of the twelfth century and continued sporadically until in the sixteenth century

area is larger than that of any other political division, the average farm was, in 1921, only two and one half acres. Here four farmers would have to use the same team. Coöperation is always easy for the other fellow. So with regard to dairy animals. How is it possible to state that in the complex conditions of India, there should be only 89.3 cows where there are now 100?

The calculations regarding the annual cost of keeping cattle are equally open to objection. His enormous totals are arrived at by allowing Rs. 72 per annum per animal for food. Now Indian cattle at three years of age sell from Rs. 40 to Rs. 75 per head. (*Royal Commission on Agriculture in India,* 1927, VII, p. 550.) It is common knowledge that they gather much of their food on the wastes and that this would be practically useless if the cattle did not take it. Some other investigator might divide this Rs. 72 at least by two.

A somewhat similar calculation was given before the recent Royal Commission on Indian Agriculture by another practical agriculturist who operates a large farm in India. (*Ibid.*) But the loss which he suggests is only a little more than 1 per cent of the calculation approved by the other authority. Instead of 1,764 million rupees, he suggests 20 million rupees. The conclusions of the different farmers do not provide mutual corroboration.

the great Akbar set up his dynasty over a large part of India. As a result of the incoming of these rulers and their armies, Hindu India, especially in the more northern sections, tended to adopt the Mohammedan *purdah* system. Before the close contact with Mohammedans, relations between the sexes were relatively free, as they still are among Buddhists, Sikhs and Jains, whose ancestors came out from Hinduism. In these communities, and in Burma and Japan where Buddhism prevails, women are as free as they were in occidental countries until recent decades. In *purdah* circles no men from outside the family are allowed to see the women.[5] Naturally the *purdah* custom is most common among the well-to-do who are able to give up the labor of their women. Among the poorer classes, as in all countries, it is necessary for women to work and the elaborate niceties of etiquette are set aside. Even the lower class Indian women who must appear publicly observe an extreme modesty, carefully concealing their faces from men. This has become a mark of good breeding and is practiced even by the oldest women with the most wrinkled faces.[6] The *purdah* system has a deteriorating effect upon the physique of all women and upon young children. For the wealthy it is possible to provide room for fresh air and exercise, but for the great masses who are barely able to maintain respectability, it means confinement to small, dark quarters. Especially in cities, tuberculosis is prevalent among *purdah* women.

Early marriage is customary in most oriental countries. In India marriages are arranged by the parents while the children are very young. In most cases, the marriage ceremony takes place long before co-habitation but even this usually begins during adolescence and sometimes immediately after the girl reaches puberty. In most Indian groups it is something of a disgrace for a young woman to remain long beyond puberty unmarried, or, as it would be in our phraseology, definitely engaged. Yet there is wide variation in

[5] Variations from these customs may be seen in the Egyptian woman's veil, covering the lower part of her face and in the veils once commonly worn by occidental women but now affected only by brides and widows. At the other extreme there is the diminishing costume on occidental bathing beaches, and the old Japanese custom according to which women bathed with perfect modesty in the same tub with male guests in hotels. In old China, all these matters were also very strictly regulated. For instance, a woman might not hand a book to her brother-in-law but must lay it where he could pick it up.

[6] Women's problems are much the same the world around, and in the East as well as in the West many little practices which are ostensibly marks of feminine modesty are in reality calculated to draw attention to feminine charms.

Indian customs and in most communities now both marriage and co-habitation occur later.[7] Among extreme religionists, especially among Southern Brahmans, corresponding to certain American religious conservatives, it is still considered essential for marriage to take place immediately after a girl reaches puberty.

Economic conditions account in the main for arranged and early marriages as well as for the family system. These customs developed because resources and known methods of using them did not admit of economic expansion. American conditions have been the exact opposite to those in India, China and Japan, where the known resources have long been used up to the limit of the people's knowledge. In America a mature youth did not need to remain at home with his parents but could easily "swarm" off with his bride to a neighboring farm, a new township, county or state, and there build a new home. Each man and wife, together with their children, formed an economic and social unit. But when all the neighboring farms, townships, counties and states are full to overflowing, this procedure is impossible. When the farm has been divided until it can be divided no further, the only solution is to bring the son's wife to live with his parents. This has many advantages. The son cares for his parents in old age, inherits the chief property and continues the family line and traditions. If the family belongs to the artisan rather than the cultivating caste, he inherits the trade and the customers, and hands them on to the all-important posterity. Failure to retain this position would mean beggary and degradation in any country as densely populated as are India, China and Japan.

Here arises the crucial question of choosing such a bride as

[7] The average age at which 2618 cases of first births occurred in Bombay and Madras hospitals recently was over 19. Of 3694 cases from other parts of India only ten first births were from mothers under fifteen years. (See Report of Dr. Balfour's investigations in the *London Times* of October 10, 1927, p. 16.) It should be recalled that the people who patronize hospitals are somewhat more sophisticated, and hence marry later than do the people in the villages. The latter scarcely know that hospitals exist.

Again we must not imagine the West as utterly removed from this point of view. The great-grandmothers of many of us were married at fifteen and sixteen and some earlier. A recent investigation by the Russell Sage Foundation (*Marriage and the State,* Mary E. Richmond and Fred S. Hall), showed that in a dozen American states the limit is twelve years for girls. In ten others it is but 14. In seven, a girl of fifteen may become a wife. In thirteen states, boys who are fourteen are allowed to marry.

It was recently stated that 44 per cent of Hindu girls are married by the time they are fifteen and 81 per cent by the time they are 20. (L. Dudley Stamp, *Asia,* 1929, p. 236.)

will be a welcome addition to the household. Family harmony is necessary and it is not to be expected that a mother of forty or fifty years will turn the management of herself and her family over to any young woman whose face might catch the fancy of a love-sick youth in a village market. To preserve family traditions and property, the parents remain in control until old age forces them to retire. When the parents are gone and their grandson is married, the former bride succeeds to the leadership of the house. Herein lies the most important reason for early marriage. If a girl is to spend her life as a coöperating, helpful and contented member of a household, she should come to it early and be schooled in its traditions and points of view.

Early marriage is also associated closely with the Hindu religion. Like other religions, it teaches that this life is to be continued and that its affairs have much to do with those of the next. In view of the commanding position taken by sex in the great mystery of life, the conclusion that its normal functioning has religious significance is not unnatural.[8] If we add to this the importance placed upon a continuous line of posterity, to keep up the religious observances, it is not strange that early marriage and motherhood should be considered woman's main contribution as well as her road to happiness here and to Heaven beyond.

The Family

A family in India is a large group of relatives descending from a common ancestor and retaining various common interests. Except for certain combinations, marriage is forbidden among its members.[9] Indian brothers often continue, long after they are married, to own and administer their property in common. Often they live together in the same house. The economic and social unit is not the individual husband, wife and children, as in the Occident, but the whole family relationship. There is no absolutely fixed

[8] From the modern point of view, this is seen in its worst modification in those few remaining temples in South India to which prostitutes are attached. In most of its practices, Hinduism tends to guard and exalt the sex life rather than to prostitute it. To say that Christians pay less attention to sex is to misinterpret wholly. Far from being ignored, it is taken so seriously that even its discussion is tabooed.

[9] What would be in-breeding in the Occident is not considered as such in many parts of India. A young man may not marry the daughter of his father's brother but in many communities he must marry the daughter of his mother's brother. This custom has been followed for centuries with no apparent harmful results. See *Census of India*, 1911., I, Part 1, p. 255.

time when the brothers separate, each with his own family, but it usually happens at about the time that their father dies or their own sons are grown up.

Of course the main reason for this type of family organization is the pressure of population on natural resources. Where an agricultural population has nearly reached its limit there are few or no new openings in other communities and the group must continue to live on its own homestead. Under such conditions the large group has been beneficial. In time of famine it has more resources to draw upon, and in all sorts of difficulties it provides succor for the individual. It protects against relapse into poverty and also into lower levels of morality.[10] Yet like the other customs already discussed, the large family group is a deterrent to economic progress. Property is owned and controlled by a large group, some of whom are sure to check any change. Individualism has many drawbacks but its ability to secure experimentation is a great advantage.

The Caste System

The most outstanding peculiarity of Indian culture is the caste system. It divides the Hindu population horizontally into over one thousand groups and sub-groups, with numerous barriers between them. Each caste is set apart by being engaged in one particular occupation of which it has a practical monopoly; by the observance of certain religious forms; by special customs which often direct the minutest details of every-day affairs; and by rigid rules as to the persons with whom social intercourse and marriage are allowed.

The original theory of caste, as found in the laws of Manu, connects it with a story of human creation. The supreme soul was born into the world as a man and then [11] "for the sake of the prosperity of the world, he caused the Brahmana, the Kshatriya, the Vaisya, and the Sudra to proceed from his mouth, his arms, his thighs and his feet," respectively, and assigned to each group a separate work. The Brahmans were to be teachers and priests and had a right to be supported by others; the Kshatriyas were to be soldiers, the Vaisya to be cattlemen, farmers, merchants and bank-

[10] In the oriental countries, the various members of a family were generally held responsible for the short-comings of any one of its members. In feudal Japan there was also the *go-nin-gumi*, or five family group, the members of which were mutually responsible for economic and moral welfare.

[11] Quoted in Risley, *The People of India*, p. 258.

ers, while the Sudras, descended from the feet, were to be servants. Tradition says that through the mixtures of these original groups has arisen the almost endless variety of separate castes and sub-castes.

If an individual disobeys the regulations, he is disciplined and may be ostracised. Unless readmitted by proper punishment and ceremony, the only future for himself and his stock is to fall into the unfortunate outcaste group beneath him.

This peculiar institution has been less rigid than is generally supposed. Change is constantly taking place within the castes, especially when new influences come to bear. For instance, since the *Chamars* or leather-workers have found in the sale of hides to European countries a new source of wealth, a group of wealthy dealers has formed a new sub-caste and now its members refuse to intermarry with their former work-fellows.[12] Also any Chamar may rise from the lowest to the highest of the seven Chamar castes. Similarly, as some of the *teli* or oil-pressing caste people in Bengal have become wealthy bankers and merchants, they have become elevated to a station so much higher that Brahmans take water from their hands.[13] Émile Senart in his *Caste in India*, written about thirty years ago but not published in English until 1930, says that caste "is incessantly stirred and modified by the leaven of reform." [14]

In speculations as to the origin of caste, there is a persistent tendency to see in it the workings of a mentality quite unlike anything in the Occident. Yet it is only the outcome of quite normal human tendencies working under somewhat unusual conditions, and, quite humanly, being carried to extremes.

Considerations of race, occupation, religion and culture are sufficient to suggest the basic distinctions which have been intensified in a society in the "theological stage of intellectual development" and living for a long period under relatively static economic conditions on the same meagre natural resources.

India has been a country of numerous races and the setting up of castes may have been in response to a determination to keep certain bloods pure. The Aryan invaders were especially anxious to keep apart from the aboriginal inhabitants. Such tendencies are almost bound to appear where races differ widely in physical ap-

[12] Mukerji, *"Foundation of Indian Economics,"* p. 41.
[13] Risley, *"The Tribes and Castes of Bengal,"* II, p. 309.
[14] *Caste in India*, p. 74.

pearance. Perhaps no place in the world presents a better example of untouchability among races than America in the relation between the negro and the white. When races become mixed and large numbers are difficult to classify, the situation sometimes grows worse rather than better. The nearer the battle is to being lost, the fiercer it becomes. Deep-felt prejudices are supported by all sorts of logic and authority. In America, the teaching that the negro race was of a lower order, created primarily to be hewers of wood and drawers of water, was substantially buttressed by quotations from Holy Writ until two generations ago and the idea is by no means dead today.

Occupational grouping also seems natural in the older countries. Where population has grown to the point of saturation there is much to be said for the son's continuing in his father's occupation. Consumers get the benefit of the transmitted skill and organization, and the young workman helps his family while acquiring skill, and then inherits certain equipment and the good will of a group of customers. While its rules reached much further, the caste in India has partially taken the place of the craft or trade gild in medieval Europe. In a new country like America or in countries with new ways of drawing upon the raw materials of other lands, such as the European countries during the past three centuries, inherited and fixed occupations seem unreasonable. But in medieval Europe there were tendencies toward caste formation,[15] and conditions in India have driven even more strongly in that direction.

The caste system may also be connected with the attempt to preserve certain faiths. The religious beliefs of the Aryan invaders differed from those of the peoples among whom they settled. To mingle freely with the worshippers of strange Gods or to be "unequally yoked together with unbelievers" was sacrilegious, and to the Hindu, religious purity was as important as racial purity, for both affected re-births and existence through the ages.

The methods evolved by the caste makers of India were therefore not unreasonable. The way to guard race, religion and culture is

[15] "It is well known that the tendency of the later Empire was to stereotype society, by compelling men to follow the occupation of their fathers, and preventing a free circulation among different callings and grades of life. A man was bound to his calling not only by his father's but by his mother's condition. Men were not permitted to marry out of their guild." Dill, *Roman Society in the Last Century of the Western Empire*, Part III, ch. 1, p. 288. Quoted by Risley, in *The People of India*, p. 271.

to avoid mixed marriage; and the way to avoid mixed marriages is to avoid social intercourse. Many of the particular customs and beliefs associated with caste belong in the scrap heap of a stupid and superstitious age but the basic aims and methods in the system are easily intelligible. Even among the British, whether at home or in India, there exists a variety of "castes" and "sub-castes" whose boundaries are by no means easily crossed.

These "peculiar elements" in Indian culture are the result of natural forces and conditions. They have come into being because they were suited to the demands of the time, place and people. With the arrival of new conditions and ways of working, all these special features are being changed. Modern materialistic interpretations have put many Brahman priests and their gods out of employment. Cities, street cars, trains, commerce and education have resulted in the removal of the *purdah* curtain and given an impulse to the postponement of marriage. The same forces are levelling the barriers between castes. These products of an old civilization are dying because a part of the soil which held their roots has been removed.

CHAPTER III

THE EUROPEAN IN INDIAN ECONOMY: PLANTATION INDUSTRIES: INDIGO

As in Europe, the old economic and social ideas in India have been changed, in the main, by the slow working of outside forces. But, whereas the great stimulus in Europe came from contacts which her people made abroad, first in the Crusades, and later in the discovery of new and unoccupied continents, the stimulus in India came, and was partly carried out by the settlement of outsiders within her borders. Indeed, some of these people not only introduced and led a new capitalistic development, but they became governors and did much more which indirectly encouraged Indians themselves to change.

Foreign Trade

While insignificant in comparison with modern trade, foreign trade early played a considerable rôle in Indian life. The most significant trade was to the shores of the Persian Gulf, Burma, the Malay Peninsula and China. Like English trade earlier, this was in the hands of outsiders—in this case of Arabs—who dwelt in separate communities in Indian and other eastern parts and enjoyed a sort of extra-territoriality, similar to that which the Hansa merchants had enjoyed in England and which western people still claim in China. Western Europe was brought into touch with Indian goods principally through the Crusades and from that time onward a considerable traffic, sometimes wholly by land and sometimes by both land and water, developed to the eastern end of the Mediterranean. Though having great odds to overcome, these traders did a considerable business in such luxuries as spices, silks and precious stones—even in cotton cloth. But in the fifteenth century the Mediterranean contact was cut off by the Mohammedan Turks and the European Powers began a frantic competition to discover another route. This led at the end of the fifteenth century

to two momentous discoveries—the sea route to India, by way of the Cape of Good Hope, and America.

During the first century after the arrival of the Europeans, trade was generally in the hands of the Portuguese and Spanish, between whom business with these non-Christian lands was apportioned by a papal bull. Opposed by an "unholy" alliance between the Sultan of Egypt and the Christian republic of Venice, Spain and Portugal traded with and preyed upon the unbelievers from the Cape of Good Hope to Canton. By the opening of the seventeenth century, when settlements were being made in America, the Portuguese, Dutch and English were participating in the Indian trade. The Portuguese were soon outdone and the Dutch gradually shifted further east, leaving India to the English. The French contested the foothold which the English gained but were practically eliminated.

In India the influence of this western trade was for a long time not great. Certain commodities were brought into more active demand but the changes were by no means revolutionary. Speaking of the first sixty years of the trade, a careful student says,[1] "there is no evidence that any important new want was brought into existence (in India) or that any large increase occurred in the consumption of foreign goods." During the eighteenth century, however, trade increased, and sales in England of goods from both India and China—exclusive of tea, which was by that time an important product—increased about seven fold. Large quantities were also reëxported.[2] Especially after about 1750, partly because of economic changes in Europe and partly because of political changes in India, the situation assumed a different aspect. Even before the middle of the century certain new developments had appeared, especially in the methods by which trade was conducted.

In the earlier decades contacts had been very irregular, although the business was mainly in the hands of large concerns of which the British and the Dutch East India Companies were typical. The first enterprises of the British East India Company were mere voyages in which several merchants were associated. After a voyage was completed, the profits were distributed and a new group of merchants might engage in another voyage when they

[1] W. H. Moreland, *From Akbar to Aurangzeb*, p. 67. See also pp. 299–300.
[2] See C. J. Hamilton, *Trade Relations between England and India, 1600–1896*, p. 258.

chose. Only gradually did a group of investors commit themselves to trading over a period of years. From the beginning the Dutch Company had a larger settled capital and carried on business with greater continuity. About 1657 the British Company became a permanent corporation.[3] Doing business only while a ship was in port was unsatisfactory because the Indian merchants adjusted their prices, knowing that within a certain few days one cargo must be sold and another bought. Only by keeping permanent representatives could supplies be collected and cargoes be disposed of to advantage. Therefore, "factories" were established and regular trading and warehousing begun.

Ships had required armed protection and factories now required still more. Finally, in order to protect their scattered factories and business centers, the British extended this armed protection and before the end of the seventeenth century their policies showed signs of territorial ambitions.[4]

> They had now deliberately adopted the plan of endeavoring to rid themselves of dependence on the native authorities; and their agents were enjoined to spare no pains for improving their revenue. "The increase of our revenue," they wrote in 1690, "is the subject of our care as much as our trade; t'is that must maintain our force when twenty accidents may interrupt our trade; t'is that must make us a nation in India. . . . And upon this account it is that the wise Dutch, in all their general advices that we have seen, write ten paragraphs concerning their government, their civil and military policy, warfare, and the increase of their revenue, for one paragraph they write concerning trade." Their purpose was now (to use their own words) to establish such a Politic of civil and military power, and create and secure such a large revenue, as may be the foundation of a large, well grounded, sure English dominion in India for all time to come.

With the gradual breakup of the Moghul Empire, the East India Company, compelled to give its interests more protection, waxed stronger, and gradually became the paramount power.

The ostensible purpose of the European traders was to exchange European for Indian products, but the Indians were interested in none of their wares except the precious metals. At this period mercantilist European statesmen looked with great disfavor upon

[3] On the history of the early companies, see especially Appendix A of W. H. Moreland's *From Akbar to Aurankzeb.*

[4] Sir Alfred Lyall, *The Rise and Expansion of British Dominion in India,* 5th Ed., pp. 48–9. See also Hamilton, *op. cit.,* p. 36.

the export of gold and silver so British merchants tried to interest Indians in woolen cloth and various raw materials. Finally they turned their attention to what they called "toys," that is, to various novelties which might appeal to the fancy of noble or royal persons. But there was little interest and the Company found itself forced to depend more and more upon the use of its capital for production in India and trade between India and her neighbors, remitting only its profits to Europe in the form of goods. The spice trade was long of great significance and the opium trade to China and the tea trade from there to England later became important. A great search was made throughout Eastern lands for precious metals and Japan became prominent chiefly as a source of copper and silver.

Business Organization

Certain changes took place in the organization by which this trade was conducted. Just as there was an evolution from the independent voyages to the organization necessitating the "factory" and then to the fort, so there were changes in the methods of doing business.

In the earliest stage, activities were confined to simple purchase and sale. With the advent of "factories" the regular Indian custom of advancing money to merchants was adopted. Since the Company was short of capital, however, it more often paid interest to the merchants. Very early it went over the heads of the merchants and gave orders direct to the craftsmen, especially to weavers, generally negotiated through native brokers. Later it gave out its materials to workers who made them up in their own work-places; and finally it hired men to work in its own buildings under its own direction and at its own risk.

All these methods presented difficulties. In 1662 a broker at Surat had [5] "cheated the Company out of not less than 25 or 30 per cent," besides charging it 12 per cent interest on advances, and exacting 12 per cent brokerage from the weavers. Moreover, his rate of pay for the weavers was 5⅜ instead of 6¼ *mamoodies* per piece and he paid them "olde worme eaten, decayed corne" in lieu of money. In one instance the ruler of a Southern principality guaranteed the Company against loss through bad faith on the part

[5] Quoted by Foster, *The English Factories in India*, vol. for 1661–64, p. 112.

of either craftsmen or merchants. In an attempt to overcome these difficulties one "factory" began a part of the manufacturing on its own account, explaining its procedure as follows: [6]

> We shall take care for the future that there bee noe money given into the weavers' hands as formerly, and they being poore men, those that trusted them were forc't to receave any taffetys though never so badd; but we shall buy the silke rough and winde it in your house, cleanse it, and dye it ourselves, and give it by weight to the weavers.

This was an advanced form of dealing with craftsmen. The preparatory stages were performed in their own shops while weaving was "put out" at piece wages. In 1704 the factory at Fort William (Calcutta) installed eighteen looms for the weaving of canvas under its own supervision.[7]

About 1765, especially after the Company took over the financial affairs of the three provinces of Bengal, Bihar and Orissa, more attention began to be paid to manufacture as distinguished from pure trade. Not only did the Company permit European "interlopers" to conduct certain businesses more freely, giving many of them considerable encouragement, it also began to take active steps both to improve processes and increase the kinds of manufactures and to produce on its own account.

The change was due mainly to three factors. First, the Company had become a tax-gatherer and was anxious to "increase its revenue." This could be accomplished by expanding production. Second, goods which were in demand in England must be secured so that the Company's larger income might be remitted. Third, owing to the development of cotton manufacturing by power in England, the market there for one of the chief Indian exports, hand-woven cotton cloth, had failed and other remittance goods must be discovered.

The Company had long dealt in raw silk and for some time had carried on silk reeling in its own factories with hired labor. When in 1765 the British Parliament reduced the import duties on silk, the Company took advantage of the opportunity to further its production and trade. Italian experts in the growing of mulberry trees and the reeling of cocoons were brought to Bengal and a great improvement was soon evident in both the quantity and the quality

[6] *Ibid.*, vol. for 1655–60, p. 296.
[7] Wilson, *Early Annals of the English in Bengal*, I, p. 249.

of the product. Several filatures on the Italian plan under the supervision of the Company's own employees were started. Large and substantial buildings were erected and laborers were induced, partly by pressure and partly by high wages, to work in them. Supervision was mainly in the hands of Indian subordinates because few of the Company's agents knew anything about silk. In 1830 there were eleven or twelve main filatures with a number of subordinate "out-filatures," and while the new efficiency did not reach a high pitch it produced a silk thread far superior to the former irregular, dirty, weak and knotted thread.

However, in the provision of raw materials, the old loose ways of doing business prevailed. Money was advanced to local agents, *pykars;* they in turn advanced it to the peasants against their cocoon crops. Final settlement was made at a rate fixed by the Company's officers after the process was completed. What amount the *pykar* paid to the peasant the Company did not know or care. The great power of the Company, however, appears to have made possible the commanding of peasants to grow the crop which it desired [8] and the forcing of reelers into its own filatures. In a few instances it undertook to deal direct with the cocoon producers but this was not a great success. In 1831 only two filatures were operated by steam power; presumably the others were operated by hand.

The Company's business was handled mainly by the commercial residents sent out to the various communities. They were given what for the time were large funds to "invest"—that is, to advance to merchants or craftsmen. The commercial residents were generally able men and well paid, for besides being allowed, during much of the time, to conduct considerable trade on their own account, they received ample commissions from the Company. Before 1832 a commercial resident at Benares received from these commissions alone six thousand pounds sterling, and a colleague at Etaya received seven thousand pounds sterling in a single year.[9] Moreover they lived in great splendor, completely overshadowing the civil officers, travelled with a huge retinue and were held in awe by the populace as representing both power and wealth. When

[8] "Mr. Cheap's office compelled the cultivators to sow what crops he wanted, and he thus obtained his raw materials without having to buy land and farm it himself." Sir W. W. Hunter, *Annals of Rural Bengal,* I, p. 363.

[9] *Parl. Papers,* 1831–32, X, Part I, p. 102.

tax-gathering was begun, the civil officer (still called the "collector") and the commercial resident were looked upon by the people as playing opposing rôles. Sir W. W. Hunter describes the situation in one place as follows: [10]

The sum spent upon the mercantile investment in Beerbhoom varied from £45,000 to £65,000 a year. The weavers worked upon advances. Every head of a family in a Company's village had an account at the factory, where he attended once a year for the purpose of seeing his account made up, and the value of the goods which he had from time to time delivered set off against the sums he had received. The balance was then struck, a new advance generally given, and the account reopened for the ensuing year.

Mr. Cheap, the Commercial Resident, appears throughout in the light of a very important personage, and one with whom Mr. Keating, although not naturally of a conciliatory turn of mind, did his best to keep on good terms. Of longer standing in the service than the Collector, and less liable to be transferred, the Commercial Resident formed the real head of the district. His gains were unlimited; for besides his official pay, he carried on an enormous business on his own account. We find Mr. Keating complaining that he can barely subsist on his salary; that the mud tenement in which the collectors lived was letting in water, and tumbling down upon his head; and petitioning in vain for a single rood of land on which to build a house. Mr. Cheap, on the other hand not only made a fortune, and bequeathed the largest indigo plantations in that part of Bengal, but meanwhile lived sumptuously in a pile of buildings surrounded by artificial lakes and spacious gardens, and defended by a strong wall which gave the Commercial Residency a look less of a private dwelling than of a fortified city. The ruins crown the top of a hill visible for many miles, and cover as large a space as the palaces, pavilions, and mausoleums which the princes of Beerbhoom had erected during two hundred years.

The Commercial Resident, rather than the Collector, wielded the power of the public purse. Mr. Keating possessed patronage only to the amount of £3000 per annum, and all valuable appointments in his gift required the confirmation of the Calcutta authorities. But Mr. Cheap, as commercial chief, had from £45,000 to £65,000 to spend each year on behalf of the Company. The whole industrial classes were in his pay, and in his person Government appeared in its most benign aspect. On the Collector devolved the harsh task of levying the taxes; the Commercial Resident had the pleasant duty of redistributing them. To the then superstitious Hindu, Mr. Keating was the Company in the form of Siva, a divinity powerful for evil and to be propitiated accordingly; while Mr. Cheap was the Company in the form of Vishnu, powerful for good, less

[10] *The Annals of Rural Bengal*, pp. 352–4. London, 1897.

venerated because less feared, but adored, beloved, wheedled, and cheated on every hand. A long unpaid retinue followed him from one factory to another, and as the procession defiled through the hamlets mothers held aloft their children to catch a sight of his palanquin, while the elders bowed low before the Providence from whom they derived their daily bread. Happy was the infant on whom his shadow fell! For nearly a quarter of a century he remained in his palace at Soorool, a visible type of the wealth, magnificence, and permanence of the great Company; and an aged man, who still haunts the neighborhood, tells of feasts which lasted forty days in those now silent and crumbling halls, where his father served, and where he grew up.

Besides doing reeling on its own account the Company permitted certain individuals to undertake independent production. Some leased large tracts, planted mulberry trees, set up great factories, filled them with hired laborers, and provided themselves with "soldiery" for protection against bandits. These "adventurers" sometimes became the Company's agents "investing" large sums of its money as well as their own. One such concern was still in existence in 1868, employing 2400 persons for reeling alone.[11] Indians also took up these more advanced methods of reeling[12] but seem not to have progressed far and what little advance was made was subsequently lost. In 1923 there was but one "large" silk manufacturing establishment in Bengal and it employed only 150 persons.[13] All except a fraction of the Indian raw silk is still reeled on a very small scale and with the most primitive equipment.

While these Englishmen were trying to establish the silk industry in India other Englishmen at home were perfecting new kinds of power driven machinery which within a few decades were to revolutionize both the methods of manufacture and the means of transport. Yet this revolution was spread over several decades and while the invention of power machinery enabled England to supply her own demand, fully fifty years elapsed before cotton manufactures began to flow in quantity from England to India; and it was nearly a half-century more before the factory was very successfully transplanted to India.

While yet unable to engage in power manufacturing in India the Europeans there were fully converted to capitalistic pursuits. As

[11] W. W. Hunter, *Annals of Rural Bengal*, 3rd. Ed., I, p. 367.
[12] *Parl. Papers*, 1831, Reports on the Affairs of The East India Co., V, p. 107.
[13] *Large Industrial Establishments in India*, Government of India Press, Seventh Issue, p. iv.

in the West Indies at about the same time, European wealth and enterprise in India were attracted to the planting industries. The first to be developed was indigo, then tea and coffee, and more recently, rubber. These have been organized on a large scale and may properly be regarded as forerunners of the factory system.

INDIGO

Indigo was used in India as a dyeing material as early as 80 A.D.,[14] and apparently was introduced from there into Europe through the campaigns of Alexander the Great.[15] Carried to Alexandria during the Middle Ages and thence to Venice it was called "Endigo" in European trade.[16] After the discovery of the route around Africa it became a very important article of commerce in the hands of the Dutch, Portuguese and Spanish. Later it was taken to America and was considerably developed in some of the West Indian islands and in the Carolinas.

European textile industries had always depended upon woad for the production of blue dyes, and when indigo was introduced, there was a large group of vested interests to oppose it. A decree of the Germanic Diet at Frankfort in 1577 prohibited under severe penalties the use of this "newly invented, pernicious, deceitful, eating and corrosive dye, called the 'devil's dye.' "[17] Similar decrees followed and at Nuremberg for a very long time the dyers were compelled to take annual oaths that they would not use indigo. It was also prohibited in France until 1737 but apparently not in England.[18]

When the British established themselves at Surat early in the seventeenth century they purchased indigo from places in Gujerat and what is now the United Provinces and eastern Punjab. A little later the Dutch were getting some indigo from Bengal,[19] though that region was not then noted for its production. This commodity was purchased ready manufactured by Indians and the Europeans

[14] Watt, *The Commercial Products of India*, p. 664.

[15] Hayes, *Notes upon Indigo*. (National Association of Wool Manufacturers, 1873), p. 6.

[16] *Ibid.*, p. 7.

[17] Ure's *Dictionary of Manufactures*, 5th Ed., pp. 499–500.

[18] Ure refers to an English prohibition which lasted for about a century but I have not discovered it. By 23 Eliz., C. 9, logwood dyes were prohibited but indigo was specifically allowed in their stead. Hamilton says (*Trade Relations between England and India, 1660–1896*, p. 100) that the use of indigo was encouraged rather than prohibited in England.

[19] *Tavernier's Travels in India*, Edited by Ball, II, p. 9.

followed the usual Indian custom of furnishing a large share of the capital for its production. This was not only a way of earning a handsome interest on current funds but was almost a necessity to guarantee a steady and considerable supply. The Indian product was poorly produced and badly adulterated. In some cases dirt became mixed with the balls when they were laid out to dry, but also certain clays of about the same consistency and of a similar color were regularly dug and sold to mix with indigo. In order to bring it nearer to buoyancy in water a little oil was added to the mixture. Customarily merchants burned a sample in order to ascertain what proportion was dirt.

Production in the West Indies and the Southern American Colonies became so much more efficient that the Indian trade almost ceased. With the growth of cotton manufacturing by power in England and the adoption of blue for the color of British naval costumes, the demand for dyeing materials became both larger and more exacting. At the same time production in America was declining because of the freeing of the negroes in the French Colonies, especially in Santo Domingo, as a consequence of the French Revolution [20] and of the situation among the English-speaking growers who were taking up the more profitable crops of sugar, coffee and cotton.

Towards the end of the eighteenth century, therefore, under the influence of European enterprise, production of indigo began to be developed in India, with its center in Bengal, and India became the chief source of supply. The British, who were then practically the rulers of Bengal, took the most active part in fostering the industry. From 1780 to 1802 the British East India Company spent large sums, principally in Bengal. It made an original advance of nearly £1,000,000 sterling [21] and is said to have lost about £80,000 [22] within a few years. Private enterprise, both European and Indian, developed and spread the business to other places, especially in the Northwest Provinces and Madras. Experienced planters were brought from the West Indies, the Company's officers were encouraged to engage in the trade, and other persons were licensed to enter the interior and set up plantations. The Company began to buy indigo instead of bills of exchange as a means of providing funds for them-

[20] Knowles, *Economic Development of the Over-seas Empire*, p. 294.
[21] Knowles, *op. cit.*, p. 294.
[22] Reid, *op. cit.*

selves in England and encouraged its employees to follow suit. Finally, although the trade was a monopoly, the Company, in order to encourage indigo, permitted anyone to deal in it for three years and offered low rates on shipments to England.

Those who started plantations were usually British but several were French and some were "Anglo-Indoos," persons of mixed European and Indian blood. British unconnected with the service of the Company or of the King were only a few and they were not allowed in the interior and were not subject to the Indian Courts. Many of these interlopers were caught and sent home, but some who were engaged in businesses which the Company considered important, such as indigo growing, were especially licensed or suffered to remain. The Company's own officials, especially the commercial residents, were also allowed, even encouraged, to engage in this business.

Planters seldom came out from Europe with capital. By 1830 none had done so. Rather they raised capital by borrowing from Indians, from European servants of the Company or from "agency houses" in Calcutta. Interest rates were high, often 10 or 12 per cent, and the agency houses which "borrowed with one hand and lent with the other" charged a 2½ per cent commission as well.[23] They also became Calcutta agents for the plantations and received commissions on purchases and various other transactions, including 2 per cent on all sales. Mortgages were taken on the property, but the risks were great. The investments in buildings and land were not nearly so substantial as the outlays for advances to cultivators.

Two principal centers were developed, one in the deltaic region of lower Bengal and another in Bihar, some 300 miles to the northwest of Calcutta. The deltaic area, though lending itself to more extensive cultivation, was swampy and unhealthful. A considerable part of the area planted in this region was on *chur* or silted up areas along the rivers where little preparation besides broadcast sowing on the mud was necessary. This was extensive agriculture in a very unhealthful region where the climate must have been like that of the swamps of the Carolinas, Louisiana and the West Indies. This area attracted a rather rough set of planters, some of whom

[23] Digest of Evidence given in the Commons Reports 1830, 1830–31, and 1831. Parl. Papers 1831–32, X, Part 11, p. 465. Indians were at the same time paying as much as 24 to 30 per cent interest in the provinces.

had been slave drivers in America and carried unfortunate ideas and practices with them. Dr. Francis Buchanan simply refused to believe the universal and terrible accusations of the peasants.[24] A famous Bengal dramatist, Dina Bandhu Mitra, made the oppression of the planters the subject of a drama, *The Mirror of Indigo,* which created much excitement and for the translating of which into English a European clergyman was fined and imprisoned.[25] As early as 1801, one magistrate proposed putting planters under bond in order to check their oppressions and in 1810 some planters were deported because of their violent practices. Again in the 1830's, especially after the opening of the country to Europeans generally, there were disturbances. In 1860 the ryots in the deltaic area refused almost unanimously to produce indigo. An Indigo Commission conducted a careful inquiry, and revealed frightful abuses by the European planters and their assistants. The Lieutenant Governor of Bengal wrote that[26] "the chief fault was in the administration of the law, which allowed such a vicious state of things to exist where our fellow-countrymen were concerned; a state which very certainly would have been put down with a high hand if only native gentlemen had been concerned." The fundamental difficulties were personal oppression and the compulsion placed upon the ryots to produce indigo at prices much less than remunerative. After the inquiry indigo planting was forced more and more out of lower Bengal.[27]

The indigo plant matures rapidly and may be harvested within two or three months after planting, depending upon the soil and climate. The stocks are cut down when the plant begins to flower but are usually allowed to grow up for a second crop in the same year.

Dye is produced by packing the plant tightly, as soon as possible after cutting, and submerging it in vats of water at about

[24] Martin, *Eastern India,* II, pp. 994–5.
[25] Dutt, *Economic History of India under British Rule,* p. 267.
[26] *Parl. Papers,* 1861, XLV, p. 80.
[27] The following table from *Indigo,* by Reid, p. 85, shows the change in relative importance of different areas.

Production in *maunds* by years. (*1 maund*=about 80 lbs.)

	1843–44	1857–58	1877–78	1888–89
Doab	6,400	9,360	44,285	64,000
Benares	16,400	10,000	17,556	18,600
Bengal	97,000	50,330	16,502	17,200
Bihar	23,400	18,822	34,857	58,748

94 degrees F. for some ten hours. When the plant is removed the coloring substance remains in the water. This water is then subjected to "beating" or stirring. A deposit is formed which, after being reduced by boiling several times, is cooled, pressed and cut out into the indigo cakes of commerce.

The cost of the raw material is the chief factor in the price of the final product, as the conversion cost of Rs. 10 worth of indigo was estimated in 1860 at only one and a half rupees.[28] In the earlier days these processes were carried on by hand. About the middle of the nineteenth century steam was introduced in the best factories to supply heat for the tanks and power for stirring and pumping; and since the beginning of sharp competition by the German coal-tar dyes about 1897, several improvements in the cultivation and bacteriological and chemical processes of indigo have been introduced.

Indigo was long an important article of export and some European planters reaped large profits. For certain agricultural districts, it was undoubtedly of great significance; for the country as a whole it held an important but not commanding place.

In 1829, it was stated that some 1,300,000 acres were planted and some 9,000,000 pounds of indigo were exported annually. This amount increased moderately but only once was the export doubled, and that for one year in the nineties. One estimate placed the value of the crop in 1829 at 2½ to 3 millions sterling; [29] another at £2,400,000 in Calcutta, increased to £3,600,000 in London.[30] The largest amount ever exported in one year was worth only three and one-half million sterling. The mercantilist memorialists of Calcutta were impressed by the fact that indigo brought in £3,000,000 from foreign countries; but the Lieutenant Governor of Bengal, the highest officer in the province, concluded in 1860 that in the deltaic area there was a loss of some twenty rupees (nearly ten dollars) on every acre planted to indigo because the productive resources could have been devoted more profitably to other crops.[31] In the Northwest Provinces and Madras, and to a less extent in what is now Bihar and the United Provinces, the ryots took to indigo because it was

[28] *Parl. Papers*, 1861, XLV, p. 86.

[29] Letter from Calcutta merchants to the Governor General, *Asiatic Journal*, July, 1829, p. 86.

[30] *Parl. Papers*, 1831, *Minutes of Evidence on the Affairs of the East India Company*, V, p. 103.

[31] *Parl. Papers*, 1861, XLV, 72–11, p. 83.

profitable, but those of lower Bengal generally considered it a losing crop.

On one of the largest Bengal plantations, the number of ryots was about one to each acre of land sowed,[32] and about one sixteenth of the land of the community was put to indigo.[33] In 1831 it was said that between 500 and 1000 Europeans were connected with the business.[34] There were then 300 to 400 indigo factories in Bengal, 56 of which were under the agency of one Calcutta firm; [35] about one sixth of the total was produced by Indians then and, as time passed, Indians [36] engaged increasingly in the industry, especially in the Northwest and Madras. Even in Bihar they turned freely to it after the middle of the century. In 1887 of the 415 factories in Azamgar district only 29 with 115 vats belonged to Europeans and Eurasians while 386 smaller factories, with 607 vats, belonged to Indians.[37] Yet the industry remained under the dominant control of European owners and managers throughout its century of prosperity. Sometimes the Indians employed European assistants and managers to handle their factories and sometimes they operated entirely with Indian staffs. On the 121 plantations remaining in 1911, there were 110 Europeans and Anglo-Indians, nearly all of whom were in the managerial and supervising group.[38] In 1921, of the 66 remaining plantations in Bihar and Orissa, 56 had European or Anglo-Indan managers as against 4 with Indian managers; 56 were owned by Europeans, the remaining 10 by Indians.[39]

England was always the principal market, but a large part of the amount sold there was re-shipped to the continent and America. The lower grades were consumed in India or were sent to Japan, China, Egypt, Turkey and Arabia.

Because of the necessity of beginning the conversion processes as soon as the plant was cut, the agricultural and manufacturing

[32] *Asiatic Journal*, 1829, *op. cit.* Also *Parl. Papers*, 1831–33, X, Part II, p. 465.
[33] *Ibid.*, p. 122.
[34] Evidence before 1830 Committee of House of Lords Digest. *Parl. Papers*, 1831–32, X, Part II, p. 454.
[35] *Parl. Papers*, 1831, Minute of Evidence taken before the Select Committee on the affairs of the East India Company, V, p. 4.
[36] *Ibid.*, p. 466.
[37] Reid, *Indigo*, p. 121.
[38] *Census of India, 1911;* I, Part II, p. 332. In the 1921 census the enumeration includes plantations employing 10 or more; that of 1911 included those employing 20 or more.
[39] *Census of India*, 1921; I, Part II, p. 302. Of the European-owned, 53 were the private property of individuals and only 3 were owned by companies. All the Indian plantations were owned by individuals.

branches had to be conducted in close proximity and to a considerable degree as a single enterprise. Manufacturing was simple but cultivation of the plant was beset with difficulties. Between 1807 and 1815, Dr. Francis Buchanan wrote of these departments of the work as follows: [40]

"The manufacturing and selling of the indigo are, however, the easy and comparatively agreeable parts of the business. It is the procuring [of] the plant or raw material, that is attended with a trouble, vexation, and disappointment so great and incessant, that I am astonished how any person can labour through the employment."

During the period of a little more than a century after the industry was revived in Bengal and before it was crushed by the coal-tar dyes, a variety of schemes for controlling the agricultural operations was tried, but none was ever completely successful. This adaptation of the agricultural organization in order to meet the demands of a large and exacting market is analogous to the evolution which results in the factory system, and furnishes some of the best examples of the obstacles which the Indian character, conditions and traditional customs were to offer to the factory system when it later appeared. The experience with various types of agricultural organization bears further witness to the economy and great tenacity of some pre-factory institutions as well as to the very long process of evolution required to turn an independent, mediæval peasantry into a properly organized and disciplined labor force. The history of the organization of indigo production in India, therefore, is the story of how the European planters varied their methods in order to bring the agricultural operations under more complete control.

The situation involved much more than purely economic influences and the forces of free competition were not allowed unimpeded movement. Also while each of these methods of working now to be mentioned was applied at one time or another in almost every manufacturing center, and each in some center, more or less continuously,[41] the methods described below as Nos. III–3 and III–4, were far more widely prevalent over most of the period than was any other type of organization. Only toward the end of the period

[40] Montgomery Martin, *Eastern India*, II, pp. 991–2.

[41] See *Letters from British Settlers in the Interior of India* [all planters], London, 1831.

did the methods, numbered III–5, IV–1 and IV–2, become strong competitors with them. Also there were numerous minor variations from the types here set forth and in only a few instances can dates for the transition from one to another be definitely stated.

The various methods utilized may be classified as follows:

I. Purchase of completely manufactured indigo.

II. Purchase of partly manufactured raw indigo to be carried through the final stages in the planter's factory by hands employed and supervised directly by him.

III. Entire manufacture carried out by the planter from raw material grown by others.

1. Purchase in the open market of raw plant from independent producers who are free to sell to the highest bidder.
2. Purchase at market rates of a crop to which the planter has prior right by virtue of having furnished the seed.
3. Purchase of plant grown by a ryot of any village in the neighborhood at a contract price agreed upon when the planter advanced a good share of the expenses of cultivation, the amount of this advance to be deducted from the value of the produce.
4. Same as No. 3 except that the ryot is a tenant on land on which the planter has acquired, by either a short or a long lease or by purchase, the rights of the overlord (*zemindar*).
5. Same as No. 4 except that the ryot, in consideration of a considerable capital loan, to be returned, generally with interest, has sub-let to the planter the occupancy rights to his holdings. This right may be held under another overlord or may be from the planter himself.

IV. Independent cultivation under complete control and risk of the planter.

1. With laborers, implements and cattle hired from the cultivators in the neighborhood.
2. With implements and cattle which the planter owns and by labor hired in the market and living mainly on the plantation.

As already stated, in the beginning the European was merely a merchant buying fully manufactured indigo from dealers, who, as is the custom still in most Indian trades, gave advances, either directly or through a middle-man, to those who produced the commodity. The Company agents began, probably early, to advance capital to these merchants. Largely because of adulteration in the later stages of production, this purchase system was displaced by No. II, in which the traders (as in other industries in other parts of the world) undertook to purchase partly manufactured material and complete the process on their own premises.

This second system prevailed in the region which is now the United Provinces, in the period prior to 1827,[42] and was the principal system there and in Madras in 1860.[43] While much of this partly-manufactured material, called *gaud*,[44] was of inferior quality, and was shipped to various parts of India in the crude state, the better parcels were further pressed and converted into cakes for sending to Europe. But the Indian producers were not very efficient even in the early processes of production, and only a small proportion of the *gaud* was of good quality. They allowed too much dirt to get in and did not push operations through rapidly enough. The European plantations established in Bengal about 1790 carried out the entire process of manufacture and produced so much better indigo that the up-country men were moved to change to that system. For some time they found great difficulty, as the growers preferred their old practices. Indeed, in spite of its shortcomings, the old system continued for decades in many places.[45]

Very seldom does an ordinary Indian peasant or craftsman work without an advance of money. The people are so poor and social usage makes so many demands upon them that they are regularly forced to borrow. Debt is also useful to the capitalist as it gives him further control over the worker. The methods described as III, 1 and 2, therefore are not in accord with usual Indian practice. In these two cases the ryot produces plant for sale but with no significant "advance." Nevertheless, these methods were prevalent

[42] *Parl. Papers*, 1861, XLIV, Indigo Commission Evidence, p. 112.

[43] *Ibid.*, App. 26, pp. 344–8.

[44] The standard quality of this *gaud* was of such consistency that ten pounds could be held on a man's bare hand.

[45] A planter writing from the Northwest Provinces in 1829 mentions "a gradual decrease in the purchase of this article (*gaud*), and an increase in the purchase of plant." (*Letters from British Settlers in India*, London, 1831, p. 10.)

in widely separated areas in both the earlier and later days. In 1890 they were still widely used, sometimes as "reform" methods to do away with the evils of the money advance system.[46] The only difference between III–1 and III–2, is in the matter of free seed by the planter; yet this difference was considerable. Receipt of the seed meant agreement to sell the crop to the planter who furnished it. The peasants feared anything suggestive of an advance, *dadun,* lest it should become customary, or even hereditary. Europeans who opened lands sometimes found it impossible for years to induce ryots to plant selected seeds, even of ordinary grains, lest these be counted a customary advance and they be asked to take them every year.[47] This was a very thin wedge of which the peasant was in deadly fear.

The prevalent system in India for centuries past and still today is one in which agriculture as well as manufacture is carried on by means of loans from merchant capitalists who thereby acquire some kind of claim to the product. This is system III–3 and most of the indigo was produced under it, or a slight modification, III–4, in which the planter's power was increased by his having secured in some way the rights of the landlord over the peasant. The essentials of the contract between planter and ryot were that the former should advance a considerable share of the expenses of cultivation, generally about $3 per acre, and buy the crop at an agreed price from which the advance was deducted. There were numerous sources of friction in this arrangement III–3. The ryot was in nearly all instances a tenant of an Indian *zemindar* or overlord who was jealous of outsiders. The *zemindar* settled quarrels and kept order among his people; but the planter also had a regular "court" for the hearing of complaints about indigo, to which all sorts of other differences were brought. This meant a division of prestige, a kind of manor within the manor. At best both were trying to "pluck the same goose."

The most serious troubles arose, however, between the planter and the ryot. The feature which was perhaps most irksome to the ryots was that though contracts were commonly made for five or ten years, the account became a running one and ryots sank deeper and deeper into debt. Frequently the crop failed to pay the ad-

[46] *Parl. Papers,* 1890–91, LIX, Paper 157, pp. 10–12.
[47] See especially the evidence of Mr. R. Morrell, in *Parl. Papers,* 1861, XLIV, Indigo Commission evidence, answers to Nos. 2387 to 2392.

vance or the ryot was fined for damage done by his cattle or for some failure to abide by the terms. Even if there was a balance, the planter and his foremen, in order to guarantee production in the next year, often insisted upon paying the ryot cash rather than extinguishing the original debt. The Indigo Commission found in 1860 that "whether the ryot took his original advances with reluctance or cheerfulness" he was "never afterwards a free man." [48] A ryot, on succeeding to his father's holding, inherited any accumulated debts and innocently assumed that he inherited also the engagement to discharge this particular debt by producing indigo. Some eighty years went by before it was made clear that the law would not support this practice. Ryot witnesses told the Indigo Commission in 1860 "that the original advances were first given many years ago, in their youth, or that they were taken by their father or grandfather," [49] and the Commission's report states that "the practical effect of the system is that the son sows because he believes that he is responsible for his father's debts." [50] "If you sign an indigo contract you won't be free for seven generations" was a saying in the villages.[51] These hereditary debts were especially characteristic of the deltaic region of Bengal. In Bihar, Madras and the region now occupied by the United Provinces annual settlements were more common and the ryot was generally allowed something like half the contract price of the plant even though the crop failed utterly. The success of the debt system was possible only by the practice of both deceit and oppression. In many cases the ryot was charged with the price of a stamp, indicating that the contract continued. Often he was subjected to blackmail and extortion by the planter or his men and in numerous cases men were held prisoner until they complied with the planter's wishes.

In 1860 serious trouble broke out in the deltaic area. The ryots refused to enter into new contracts and many refused to be bound by old ones. The Indigo Commission, already referred to, carried out a thorough investigation. The publicity furnished by this in-

[48] Report, Par. 109.
[49] *Ibid.*, Par. 57.
[50] *Ibid.*
[51] The manager of a concern having some 25,000 acres in indigo said that Rs. 462,000 or about $9.00 per acre of debts which had been accumulating for forty or fifty years were "not immediately recoverable from the ryots." The rent on this land appears to have been less than $2.00 per acre, so on old advances the average ryot was in debt about four and one half years' rentals. *Parl. Papers*, 1861, XLIV, Evidence of Mr. Larmour. Answers to questions 1859, 2066 and 2069.

quiry, the report and the accompanying discussion, resulted in a marked decline in the old methods. Ryots learned that agreements were not heritable and the industry shifted still more to Bihar where more liberal practices were in vogue. From about this time, therefore, there was a change in practice and instead of controlling the ryot by an hereditary debt, the planter sought to acquire a similar but more powerful position as the ryot's *zemindar* or overlord. That is, system III–4 in our classification tended to become the ruling one. In describing this change the Bengal Government wrote in 1890: [52] "The system which allowed this evil (hereditary debt) was exploded thirty years ago, when indigo was almost abandoned over the deltaic districts, and the few factories which remained were compelled to base their arrangements on zemindari influence, not on advances." This means not that the advances were discontinued, but that they were no longer the *chief* instrument for guaranteeing a steady supply of plant.

The transition from dealing with tenants on other estates to dealing with tenants on their own estates marks an important stage in the indigo planters' business. This was a distinction very sharply made in all discussions from the early days of indigo planting. Cultivation by ryots on land over which the planter held either by ownership or by lease the rights of the landlord, was called *ilaka,* while cultivation on land over which he held no rights was called *be-ilaka* cultivation. Planters were constantly trying to increase their *ilaka* at the expense of their *be-ilaka* area. In the early days some *zemindars* would transfer their rights merely for the amount of the annual tax which they must pay to the government, allowing the planter to collect in turn from the cultivators. Because of rapidly rising prices but still more because of the increased competition among planters, it had become common to charge very heavily for this privilege.

This practice depended very much upon the system of land ownership and occupation prevalent in the country. Much of the land was and is held in large estates, but a landlord (*zemindar*) was in certain respects rather like a feudal lord and many of the actual cultivators had a customary and permanent occupancy, making them practical owners. Others had lesser degrees of security ranging down to a considerable group who were tenants at the will

[52] *Parl. Papers,* 1890–91, LIX, paper 157, p. 6. Also p. 16, par. 16.

of the overlord. Theoretically, and in the main practically, the peasant was free to grow what crops he pleased, as he pleased. Yet long established custom placed him in the position of a vassal and required that he make certain gifts or payments to the overlord, —such as upon a birth or a wedding in his own family,—and that he furnish food and service when the master travelled through his neighborhood. The over-lord in turn was the peasant's guardian and protector, and was supposed to encourage wholesome traditions and deal out even-handed justice.

To the government, the *zemindar* owed such duties as the keeping of order within his domains and the provisioning of government troops. While in some parts he was virtual ruler, his chief function was to collect the tax, or rent, from the cultivators, and the percentage of it which he was allowed to retain constituted his principal income. *Zemindars* were sometimes political favorites or distinguished persons who had been granted estates, parts or all of which might be tax free. Many were local magnates of long standing and clear recognition, but the most numerous were tax collectors whose families had been in the position for only one or two generations.[53]

Rather ill-considered legislation carried out by Lord Cornwallis (of Yorktown fame) when he was Governor General, and just as indigo production was being revived, made these *zemindars* owners in a more nearly absolute sense than they had been. The *zemindar* was now compelled to meet his tax payments more promptly and was given in turn more drastic powers over cultivators. Many landlords fell into arrears and lost their estates to aggressive newcomers who were naturally more ready to conduct them on a profit basis.

It was these *zemindary* rights which the owners of indigo factories sought to secure. This right gave influence over the ryot in a variety of ways, but in the main they were "informal," there being a measure of "goodwill" growing out of ancient custom which inclined a cultivator to do what his overlord proposed. The share of his holding planted to indigo was usually only three *cottas* in the *bigah*, or about one seventh. The cultivator was inclined to go as far as this, especially when he received a liberal advance—always a great temptation—and a fair price for his produce. It was

[53] See W. W. Hunter, *Bengal Records*, I, p. 31. Also, Baden-Powell, *The Land Systems of British India*, I, Bk. iii, ch. 3.

also possible for the planter to offer special inducements, such as more agreeable rentals for other lands, or to make life very unpleasant for a villager who was recusant. The planter too, often grossly abused the power which he, as a *zemindar,* held. Tenants who planted received much better terms all round. The better lands were demanded for indigo, and sometimes a ryot with a considerable area suitable for that crop was forced to exchange it for other land. Tenants were practically forced to take advances. A missionary remarked: [54] "Since I have had charge of Kapasdanga the cultivation of indigo by Christian ryots has considerably increased, but I am not aware of one instance in which the ryot has taken the advances of his own accord."

The ryots suffered considerably from being practically forced to work the indigo fields whenever the planter and his foreman demanded, often being withdrawn from work which to them was more important. In most instances a plantation had a certain amount of land cultivated independently by the planter with hired labor. Such land was called *nij,* or *zerat,* and corresponds to the "home farm" in England. Tenants were hired, along with their bullocks and plows, to farm this land and they often felt it a hardship to be called for that purpose at what seemed to them the manager's whim.

For many decades the planters used this *zemindar* means of control (III–4) and for much of the time it was efficient. To oppose one's landlord was not only unethical; it meant an unequal fight against a powerful man who in self defense, during a time of loose government and great lawlessness, commonly kept a group of hired fighters. But the old customs were changing and were so abused that the cultivators finally rebelled. Gradually they learned that their contracts were not hereditary, and that their relations had been put on a legal basis. This knowledge, aided by certain laws tending to remove inequality,[55] caused them to raise violent objections to growing indigo, even for their landlords.

Finding that even the *zemindar's* rights left him without adequate control over production, the planter was driven to devise another scheme. If the old debt was not hereditary he would devise one that

[54] Indigo Commission Report 1860, *Evidence, Parl. Papers,* 1861, XLIV, 72–1, p. 38.

[55] Such as Act X of 1859, which, among other things, removed the power of the landlord to command the attendance of his tenants at his place on certain days to pay their rents.

was. He undertook to get his hands on the ryot's chief property, the occupancy right to the holding he cultivated. Having failed from above he would attack from below; he would secure a position in which he could take, or threaten to take, the ryot's farm from him. System III–5 tended therefore to succeed System III–4. The planter began to make larger loans to the cultivator and received as compensation a sub-lease of the ryot's holding. He thus often became a sub-tenant of one of his own tenants. It differed from the regular advance system (No. III–3, in our outline), in that the advance was larger and in the nature of capital rather than working expenses. The ryot, furthermore, gave as security not merely a mortgage on the coming crop but on his farm. The *khartouli* lease, as the new system was called was only one evolutionary stage removed from the earlier advances which by custom were allowed to become hereditary. This was a larger loan and was very definitely and legally hereditary—because the lease on the holding actually did follow it during its passage from father to son and the loan was so large that it could only by good fortune ever be paid off. If the loan was not paid off the planter remained the legal holder. At first a lease of only a small part of the holding, such as might be put to indigo, was taken; but it was soon learned that this lease was a really effective instrument and the large proportion of ryots in need of financial aid allowed the planters to extend the lease to the entire holding. Sometimes it was written in the contract, but commonly it was a mere agreement, that so long as the ryot planted certain amounts of indigo, he should retain the use of the little farm, paying the rent as before; but unless he did this the planter would order him off and put in another tenant who *would* produce indigo. Commonly the planter did not wish to occupy the holding but sought only the right to take it, which he might use as a threat. One district official wrote: [56] "Thus there is growing up in our midst and in spite of our efforts at beneficient legislation, a system under which the ryot mortgages his entire holding and the very site of his house for a period probably extending beyond his own life time, redemption being contingent on the repayment of a loan. The ryot, to use the common expression, is selling himself body and soul into hopeless servitude." And the collector in another region wrote: [57]

[56] *Parl. Papers*, 1890–1, LIX, paper 157, p. 10.
[57] *Ibid.*, p. 11.

"The parties have a tacit understanding that the ryot is to continue to occupy the land, cultivating indigo in a small portion only, but there is no condition of any sort in the lease allowing the ryot to remain in possession; on the contrary, the instrument guarantees complete possession to the indigo planters. Very large numbers of the ryots are now mortgaging away their lands in this way."

But there was also a second step in these *khartouli* leases, namely, that in which the planter leased and actually took over from the ryot a part of the holding suited to indigo and operated it at his own risk either with cattle and plows of his own or by hiring from villagers. This brings us to the complete system corresponding to a fully developed factory organization in which the capitalist employer manages the whole and assumes the entire risk. This is System IV in our classification.

This independent conduct of both agriculture and manufacture under planter management had been in use to some extent from the beginning. Influenced perhaps by the slave plantation system of the West Indies, the early planters appear to have undertaken to operate their concerns as single units, providing their own animals and tools and working them with hired labor.[58] But the extortions and difficulties to which they were exposed caused them to abandon the practice and turn to buying the plant from cultivators whom they induced, by the various methods already noted, to grow it.

Nevertheless, this type of planting continued throughout the century and at times was prominent. It gave the planter easier control over the operations, but it was generally more expensive than purchasing plant from the ryot. In 1860 a factory not uncommonly cultivated on its own account one fifth of the land contributing its raw material; and in a few instances the entire amount was so administered. On the estates of one of the large firms, the Bengal Indigo Company, about one fifth was independent cultivation—*Nij-a-bad;* but among the different factories were some with more than this and some with practically none.[59]

It was carried on in two ways, designated as IV–1 and IV–2 in the above outline, but there was very little of the latter. The usual method was IV–1, that is, to hire local villagers with their

[58] Francis Buchanan, in Montgomery Martin, *Eastern India,* II, p. 992.
[59] Indigo Commission, 1860, *Evidence,* Answers to questions, pp. 1939 and 1955.

plows and bullocks, paying them by the day, at so many days per rupee. As the ryot was required only infrequently, the giving of a few days during the season to the indigo fields of the planter did not change his economy very materially. He worked the same fields which he would have worked, but under the direction of the planter took no risk as to the outcome, and received wages for the time spent.

In the second method, IV–2, outside coolies, called *boona* coolies, were given steady employment. The *Bauri,* a low aboriginal group now much employed in coal mining, were prominent as "beaters" in the vats. "Hill men" often came to the factory with their families and were provided, in addition to huts, pasture for an animal or two, and small plots of land for cultivation. Their women and children also worked in the fields at such tasks as weeding and pulverizing, under the direction of foremen.

Independent cultivation by the planter flourished best in Bihar. Towards the end of the indigo period, that is in 1890, about 120,000 of the 240,000 acres in that province were so planted.[60] There, it was most common to employ the cultivators of the immediate neighborhood to work at irregular intervals by the day. Usually they were in quite densely populated regions and an abundance of labor was at hand at reasonable wages.

In 1911 about one third of the laborers on these plantations were employed where the total group numbered 400 or more. Of 121 plantations in 1911, 22 were of this size and the average number of hands employed was 719. In 1921 only one plantation had over 400 employees; this had 452. Six other plantations employed over 200 persons, and the average for all was less than 100 hands.

Thus, as the business of the East India Company had passed from simple purchase of fully manufactured cloth through a number of stages, each tending to give the Company more complete control, until it manufactured silk and other articles under its own direction and at its own risk, so the business of the indigo planters passed from that of simple purchase through the various stages and methods of partial manufacture to that of *Nij-a-bad,* in which the planter both produced the raw material and manufactured it under his immediate control and under his own direction. In the early

[60] *Parl. Papers,* 1890–91, LIX, East India Indigo Cultivation, Paper 157, p. 5.

stages it appears that the rural people work better under their own direction; but with experience they have been gradually disciplined to a point at which they can be molded and supervised as an organized labor force.

The acreage and production of indigo fell rapidly from about 1897, although as much as ten years earlier it was stated that aniline dyes were closing half the dye houses in India.[61] In 1901–02 exports were less than half what they had been in 1896 and by 1912–13 they were only one seventh of their amount in 1901–02. Between 1894–95 and 1904–05 the area planted fell to one third its amount at the beginning of the decade; and in the next ten years it fell to one tenth. The lack of dyes during the World War pushed prices up and increased acreage and production quickly followed. Contrary to the oft-stated theory that the Indian is blind to his own economic advantage, the area planted in 1916–17 was more than double that of 1915–16. But the bubble soon burst, and in 1924–25 the acreage had fallen again to a relatively insignificant amount. An interesting feature of the recent situation is that, whereas ever since 1911 Bihar and Orissa have had all the factories coming under the Factory Act, Madras has by far the larger area planted. In 1923, 51 per cent of the area planted in indigo was in Madras and only 14 per cent in Bihar and Orissa. Yet, in 1918, single factories in Bihar and Orissa sometimes utilized the plant derived from 5000 to 7000 acres.[62] The explanation lies in the fact that Madras indigo is produced on a small scale and is worked up in small "factories" which do not come under the Act. Indeed the crop from only a very few acres can be handled in the tiny vats commonly used by the farmers themselves.

In Bihar and Orissa the industry continues to decline. In 1923 there were 57 factories employing an average of 67 persons each[63] while by 1927 the factories had fallen to 31 with an average of 60 employees.[64] Six factories had been closed during the year.

The word "indigo" brings unpleasant thoughts to Indians. To them it typifies the white man's greed, dishonesty and oppression. Unfortunately many are convinced that the white man will always be as the history of indigo portrays him. This, they say, is the

[61] Sir (then Dr.) Geo. Watt in *Journal Society of Arts*, February 18, 1887.
[62] F. Marsden, in Bulletin No. 74, IV, Department of Agriculture, Madras, p. 7.
[63] *Large Industrial Establishments in India*, Seventh Issue, p. 44.
[64] *Annual Report of the Chief Inspector of Factories for Bihar and Orissa*, 1927.

spirit of western business whether it be on the plantation or in the factory. Unquestionably this is one of the dark episodes in the history of British dealings with a subject people. The only excuses to be offered are that the circumstances were trying and that conditions were improved soon after the administration was transferred from the Company to the Crown.

A sense of proportion compels us to remember also that what existed in India was not worse—in the main not nearly as bad—as what existed in our own southern States. And we know that many persons of character and good will stood for slavery here. Everywhere in the New World great natural resources offered large returns for those who could devise ways to develop them. Slavery, like the various oppressive systems for the production of Indian indigo, was an "invention" to accomplish what was later done, first by livestock and finally by a great variety of machinery. The Indian planter had much to contend with in a country very poorly policed and in great disorder. All his capital had been invested and he must secure a supply of plant or go into bankruptcy. Many had handled slaves in the New World and to them the Indian scheme must have seemed fairly humane. Furthermore, the Indian social and economic system was itself full of cruelty at the time, and a ready supply of lawless and unprincipled bullies was at hand to carry out the planter's ruthless policies.

But synthetic dyes made the cultivation of natural indigo unprofitable and the planters who owned their estates were compelled to introduce other crops. The process of adjustment which we have followed came to an end. From independent merchants buying finished indigo, the indigo dealers had become, by a gradual process of evolution covering roughly a century, owners of land and independent producers with every stage of the process under their own control. The last stage in the evolution of this business was seen when it passed to virtual extinction.

CHAPTER IV

PLANTATION INDUSTRIES (*Continued*)

TEA: COFFEE: RUBBER

IN addition to silk production and indigo growing, the cultivation and manufacture of tea also offered to the Europeans in India a good opportunity for the employment of their capital and organizing ability. There were abundant areas of land whose soil and climate were suitable and always an inexhaustible supply of labor.

The production of tea, however, was an unknown art to both Europeans and Indians. Traders had known of its existence and use in China since they began trading there, but a century elapsed before it was brought to Europe and then only in inconsiderable quantities. Although in 1815 the China tea trade was the principal factor in the profits of the East India Company, the horticulturists in that Company's employ in India were debating whether it grew on a tree or a bush and whether both black and green tea came from the same plant.

During the eighteenth century, officials of the Company had suggested the introduction of tea growing in the territories controlled by them, but the court of directors in England showed little interest in the proposal. Sufficient reason for this lies in the fact that they held a monopoly of the British trade to China, the principal item of which was the importation to Europe of Chinese tea.[1] But the removal of the Company's monopoly of the China trade in 1833 "quickened their perceptions to the advantages likely to accrue to India by the establishment of a new industry, and in 1834 the court sanctioned the appointment of a committee to consider and submit plans for the introduction of tea culture in India." [2] Seed and plants were brought from China, together with several Chinese laborers, and experimental gardens were started at a number of places along the south slope of the Himalayas and in lower country in Assam, which was just then being opened to European enterprise.

[1] See *Parl. Papers*, 1831, Affairs of East India Co., V, p. 665. Also *Parl. Papers*, 1831–1832, X, Pt. I, App. No. 2, p. 20, and App. No. 3, p. 45.

[2] J. Berry White, *Jour. Soc. Arts*, June 10, 1887, p. 734.

At many places in the Brahmaputra valley of Assam, tea had been discovered growing wild and to these regions special attention was devoted. In 1838 the first Indian tea was marketed in London, and in that city in 1839 was formed a large company, the Assam Company, with a capital of £200,000 for the growing of tea. During this period experiments with tea plants were being carried on by officials, army officers, medical men and others. Most were technically successful, but for those who undertook tea growing as a commercial venture, hard times lay ahead. The Assam Company had a virtual monopoly of tea production during the first decade, but its management was so ineffective that it not only paid no dividends out of earnings for thirteen years, but at one time had dissipated all its capital.[3] Its shares, which had £120 paid upon them, sold for 2s. 6d. The tide then turned, however, and in the early fifties it began paying handsome profits. This led to a great extension of tea planting. The principal development was in Assam, —at first in upper Assam, but later in Sylet and Cachar, in the lower part of the province, and in the neighborhood of Darjeeling. "If the *drinking* of tea failed to inebriate, the *planting* of it did not," and a regular mania developed. The government was unable to keep up with surveys and many a "tea garden" was sold and re-sold though it lay in the midst of a trackless jungle and was miles from the nearest tea shrub. Companies were formed to take over at fabulous prices most of the already established plantations. The inevitable crash followed and tea growing was as unpopular as it had been popular. But this depression was short lived and planting came into full swing again. For Assam the great increase in area and output is shown in the accompanying table.[4]

INCREASE IN TEA-GROWING
1850–1871

YEAR	NO OF ESTATES UNDER DISTINCT PROPRIETORS	AREA UNDER CULTIVATION IN ACRES	OUTPUT OF TEA IN POUNDS
1850	1	1,876	216,000
1853	10	2,425	366,700
1859	48	7,599	1,205,689
1869	260	25,174	4,714,769
1871	295	31,303	6,251,143

[3] *Ibid.* In 1873 it was still producing about one fourth of the tea grown in Assam. *Parl. Papers*, 1874, XLVIII, Cd. 982, p. 36.
[4] *Ibid.*, p. 36.

Growth in the Darjeeling district was less rapid but by 1873 about 15,000 acres had been planted. Other sections further west, in the Punjab and the United Provinces, have had gardens from the first, but have never become very important tea-producing areas. In the high lands of Madras tea planting began at about the same time and that region has ranked next to—but far behind—Assam and Bengal, which include within their boundaries over eighty per cent of the total area planted. In 1927 the percentages for the various regions were as follows: [5]

Assam	56.2 per cent
Bengal	25.2 per cent
Travancore	7.6 per cent
Madras	7.5 per cent
Bihar and Orissa, Punjab, United Provinces, Coorg and Trepura	3.5 per cent

The later remarkable increase in area for all India is given by five year periods in the accompanying table.[6]

	Year	Area (Acres)	Output, 1000 Pounds
Average	1885–89	310,595	90,602
Average	1890–94	375,700	124,895
Average	1895–99	467,291	158,375
Average	1900–04	524,720	201,389
	1905	528,004	221,400
	1910	563,554	263,269
	1915	634,940	372,203
	1920	704,059	345,340
	1925	727,663	363,507
	1927	752,930	390,920
	1929	789,000	432,998

In the beginning, as it was thought that tea would grow successfully only in high altitudes, experiments were confined largely to mountainous territories. This proved to be a false assumption and except for the neighborhood of Darjeeling most of the development has been in the plains, which produce good tea and much heavier yields per acre. Some of the Darjeeling tea is grown at an altitude of 7,000 feet and has a particularly fine flavor which makes it less subject to variation in demand, but the crop per acre is very small. Much of the later extension in the Darjeeling

[5] *Indian Tea Statistics* 1927, p. 11.
[6] *Indian Tea Statistics*, 1927, pp. 10–11. *Ibid.*, 1929.

district has been in the *terai* at the foot of the mountains where "plain" agriculture is possible.

Much of the tea land was reclaimed from unused jungle. At first the government let land on lease for long terms and with liberal postponements of the beginning of rentals or taxes. But the Englishman likes his land in fee simple and in 1861 regulations were introduced to facilitate such holdings. It was argued, doubtless correctly, that a developed estate would have greater value if held in fee simple. In 1873, it was stated that there were at least twenty different types of tenures in the tea regions of Bengal and Assam, but that nearly all tea land was held in one of three ways, namely, on clearance lease for 99 years, in fee simple, or on cultivation lease. Holding in fee simple was always the most popular.

Land was given up by the government on fairly liberal terms. When sold the prices ranged from Rs. 2½ to Rs. 5 ($1.20 to $2.40) per acre.[7] Clearing and improving were difficult and only hand methods were used. In the hilly regions it is necessary to terrace in order to prevent erosion, for tea requires an annual rainfall of at least sixty inches. It was stated in the early days that an estate could be cleared, planted and brought to the bearing stage for about £40 to £50 sterling per acre. In 1887 it was claimed that the investment was nearly £70 for each acre planted in tea; but this included much land only partly reclaimed and still other which had not yet been touched. The estimate appears also in other respects to have been too high. Many modern plantations have been produced at an outlay of Rs. 300 to Rs. 500 per acre—when sterling is at par, about $108 to $180 per acre.

There has been great variety in the size of plantations and hence in the methods of working, but tea has been almost entirely a large-scale industry. In the Punjab, farmers have lately grown tea in very small areas averaging four acres, and in the United Provinces a small amount was produced in that way. Also in Assam and Bengal there have been numerous small gardens, but the typical garden is large. It is not always easy to rely upon the figures given because they sometimes apply to total area and sometimes to area actually planted to tea. We have already seen that in 1871 Assam had 295 plantations averaging a little more than 100

[7] This was when the rupee was worth about 48¢. It fell with the price of silver after 1873 to about 26¢ in 1894–5.

acres each. At the same time Darjeeling had 44 with a reported area of 229 acres each; [8] but it is certain that the plantations contained much uncleared land. With the passage of time plantations have become larger, partly through the taking in of more wild land and partly on account of the consolidation of estates which continued regularly after the earlier experiments.[9]

The tea industry was started very largely by Europeans. A great many plantations were proprietary concerns established by retired government officials or army officers. Of forty-five large lots of seed distributed by a government station in 1861 over half, or 23 lots, went to Europeans with military titles ranging from captain to general. Ten lots went to Europeans who gave no title, three lots to as many companies, while only nine lots went to named Indians. Even of these, five were very small. Twenty unnamed Europeans also received small portions but as a group they received more than 301 "natives" together.

Many of the early plantations proved too small to occupy economically the full time of a European manager and an assistant, and gardens began to be consolidated. Whereas in the earlier decades the two Europeans might operate an establishment producing 80,000 pounds, before 1887 it had become customary for them to care for an establishment producing 240,000 pounds, thus decreasing the expense of superintendance from about 1.3 annas to about 0.56 anna per pound.[10]

Under the increasing control of companies, the consolidation of smaller gardens into large-scale enterprises was stimulated. Many individuals were unsuccessful managers and with the desire to "go home on furlough" it was often difficult to have the work carried on. Financial stress also came, especially in 1866, 1867, and 1868. The managing agency, in company form, fulfilled in tea production about the same functions which it has fulfilled in cotton and jute manufacture, and in other branches of economic activity in India. Generally, its members knew India and the industry fairly well; several producing units in the same line of industry were often under the control of one agency and it had financial resources or access to them and was continuous. With a group of gardens it always had someone in India at least fairly competent to look after them.

[8] *Journal of the Society of Arts*, January 27, 1871, p. 193.
[9] *Ibid.*, June 10, 1887, p. 741.
[10] *Ibid.*, June 10, 1887, pp. 741–2.

These companies were sometimes registered in India, in which case they might be either Indian or European owned, but more often they were British, registered in England. Much more "home" capital was invested in tea than in indigo. This occurred at a later period (1880–1910) when England had more to invest, and after the railway, the steel steamship and the Suez Canal, not to mention the setting up of rule by the Crown, had brought the two countries much closer together.

While production has been on a large scale, this has not been machine farming. The tea plantations are rather like the cotton plantations of America before the Civil War when most of the work was done by hand-labor. The grubbing of old stumps and clearing of shrubbery as well as the stirring of the land and the setting out of the new plants was done by human toil. The instrument of cultivation is still the hoe, and the picking of leaves is all done by hand by women and children. This necessitates a very large number of workers. The average plantation has nearly 500 acres in tea, and the average number of hands for a plantation in full bearing has been about one per acre. Much depends upon the stage which the garden has reached and upon whether the plants are set close together or far apart. In the early days wide planting was often practiced in order to occupy and hence retain so much more land. One spokesman put the requirement in the development stage as low as one person to two acres.[11] It varies also with the type of land. While clearing is in process and when the garden is at its prime much labor is required, but in the intervening three or four years, a much smaller number of workers suffices. In 1887 it was estimated by a prominent tea planter that the 275,000 acres then in tea, furnished occupation to 500,000 Indian workers.[12] This was after the efficiency of labor had increased by about a fifth. In Assam in 1927–28 the most efficient districts employed 0.86, and the least efficient, 1.61 adult laborers per acre.[13] In 1927, the average was just over one person per acre for all India, although about ten per cent more hands are hired in the busiest season. Another peculiarity of tea growing is that families come to the gardens and men and women are employed in nearly equal num-

[11] *Ibid.*, March 19, 1869, p. 294.
[12] *Ibid.*, June 10, 1887, p. 740.
[13] *Report on Immigrant Labor in the Province of Assam for the year ending June 30th, 1928.*

bers, while the children are also regularly employed in the fields to pluck the leaves. About one sixth of the force is under 14 years of age.

The tea industry differs from most indigo production in that the person or firm who does the manufacturing also undertakes to produce, under his own management and at his own risk, the raw materials. In this case, there is no delegating of the agricultural operations and risks to ryots. The securing and handling of labor was and remains the major problem on a tea plantation, especially in Assam.[14] In indigo growing too, only a minor portion of the land of a neighborhood was utilized and that was scattered in small pieces among other fields, while in tea growing the land was taken in large areas. It was a very onerous task to undertake the collection, organization and direction of such a large group of ignorant and undisciplined peasants. To make matters worse, tea plantations were laid out in new and undeveloped regions to which it was necessary to bring laborers from the more populous districts, usually hundreds of miles away.

In the Darjeeling district, local inhabitants and those from such nearby districts as Nepal furnished a sturdy and tractable laboring force, but in Assam the local inhabitants were so few and so disinclined to take continuous employment that outsiders were mainly used. Aboriginal tribes and people from the western parts of what was then Bengal, and the eastern parts of the United Provinces and the Central Provinces were imported. This recruiting was expensive and very hard to control as there was much room for misunderstanding and misrepresentation. Whole families came under contract, really being indentured. Agreements were usually for three years and monthly wages ranged from Rs. 2 to Rs. 5 ($1.00 to $2.50) per person. In the early period of tea growing, wages were affected by the building of railways and other public works as well as by the opening up of the country to money economy. As late as 1857 a man could be had at Rs. 2½ per month ($1.25); but this soon rose to Rs. 4, and more, and one manager claimed that in Assam it was necessary to pay Rs. 9 per month as early as 1869.[15]

But it was not high wages that employers complained about;

[14] See *Report of the Royal Commission on Labour in India*, 1931, Cmd. 3883, Ch. XX.

[15] *Journal of the Society of Arts*, March 19, 1869, p. 297.

their problem was to get good laborers at a reasonable recruiting outlay and then to retain them. Most of the planters were from the British Isles and could not speak the local languages. In any case it would have been wholly impractical for the employer to select his own hands in the distant districts. While often impelled by the pinch of poverty at home to go to the tea districts, many of the recruits had some debt or obligation to meet before they could leave. Also, the giving of an advance was, as we have already seen, a firmly established custom. This advance, plus the expenses of transport and recruiting, has varied from Rs. 60 to Rs. 500 per man, and now averages about Rs. 150.[16] The planter was forced to pay this before the worker even arrived at the plantation.

Private recruiters undertook to bring laborers direct to the gardens; but this caused still more misrepresentation, resulting in dissatisfaction, nostalgia and desertion. So glaring were the abuses that the government appointed a commission to study the situation and passed an Act (III of 1863) whose main purposes were to provide that coolies understood what they were undertaking and to reduce the "fearful mortality" which occurred on the long journey to the gardens. The law "completely failed" in its first purpose, and as 60 persons per thousand, recruited during the first three years of its operation, died on the way to the plantations, it had little success in the second.[17] An official wrote in 1873: [18]

I can state most positively that the following passage from the valuable report of the Tea Commissioners of 1868 is far from giving an adequate idea of the deplorable condition of the mass of laborers whom I found in Cachar in 1864: "The laborers have too often been deceived by unprincipled recruiters; they have come up expecting much higher wages and a very different kind of life from what they found. From the time they were recruited till they reached their final destination, they have been guarded not unlike prisoners. They have been told that they were going to a garden in a country where the means of living were plentiful and cheap; where they would receive very high wages and have little to do. They have found themselves set down in a swampy jungle, far from human habitation, where food was scarce and dear, where they have seen their families and fellow laborers struck down by disease and death, and where they themselves, prostrated by sickness, have been able to earn by far less than they could have done in their own homes."

[16] *Report of the Royal Commission on Labour in India*, 1931, Cmd. 3883, p. 359.
[17] J. W. Edgar, Report on Tea Cultivation in Bengal, *Parl. Papers*, 1874, Vol. XLVIII, Cd. 982, p. 20.
[18] *Ibid.*

Finally the government prohibited all recruiting for Assam, the chief region for which it was necessary, except by garden foremen, and subjected their recruiting to very elaborate regulations. While there is still considerable dissatisfaction and some fraud, both have been much reduced and there is agitation for a larger degree of freedom, partly because of the shortage of labor. In 1929–30 roughly one worker in fifteen was a new recruit.

Smaller and smaller proportions of the tea garden population have been imported. Many laborers, after the termination of their contracts, have settled in Assam and their children have become workers. In 1927–8 nearly 10 per cent of the workers and a much larger percentage of their children were born in Assam,[19] and in 1929–30 only about 6 per cent of the entire force was recruited.[20]

It was not only on the way that the tea laborer met trouble in early times. His work was hard and of a sort to which he was unaccustomed. Housing was generally inadequate even for his meagre standards, and owing to lack of transportation facilities, food was scarce and extremely dear in these distant, unsettled regions. Undernourishment and disease, working upon an originally poor physique, quite incapacitated many coolies for a day's work. Flogging became common. Like the slaves of the South, many Indian coolies undertook to run away; but although they were free men their chances were little better than those of the southern slaves. They were surrounded not only by guards and savage trackers but also by hundreds of miles of impenetrable jungle which afforded no food, water or shelter and was filled with ferocious beasts and deadly germs.

The planter was disappointed. He had invested a large sum in securing a man and could not permit him to disappear at the end of a week or day.[21]

Chowkeydars (guards) were posted at every possible outlet from the cooly lines, which in some instances were enclosed by high palisades, outside which the coolies were not allowed at night. A reward of Rs. 5 was given to anyone catching a runaway cooly, and the dislike felt by the native population to the foreigners (the imported laborers) was enlisted as well as their avarice. The savage hillmen were in special request to

[19] *Reports on Immigrant Labor in the Province of Assam for the year ending 1927–28.*

[20] *Indian Trade Journal,* Supplement, February 2, 1931.

[21] Edgar, Report on Tea Cultivation in Bengal, *Parl. Papers,* 1874, XLVIII, Cd. 982, p. 23.

track out fugitives. . . . If the coolies were caught they were tied up and flogged, and the reward paid to their capturers was deducted by way of fine from their future earnings.

Besides the clash of interest under most trying circumstances, racial and social antipathy were ever present.[22]

The miseries of the early immigrants were in too many instances cruelly aggravated by the ill-treatment of their employers. At one time the feeling of the planters as a body towards their imported laborers was most deplorable. The best men looked on them as a thankless, discontented lot, for whose good it was almost useless to try to do anything, and whom it was impossible not to dislike; while among the worst sort of planters this feeling of aversion deepened into a mingling of hatred and contempt that led in some instances to acts of revolting cruelty, in far more cases than has ever been publicly known, to systematic and gross ill-treatment.

Among a group of about 50,000 coolies in the tea districts, 13,905 died and 4,425 deserted and disappeared in the forest within a year and a half.[23]

Many cruelties were perpetrated, some resulting fatally. Some government officials were zealous in punishing the planters but a good deal of laxity was shown. One Commissioner of Assam wrote to the Secretary of the Government of Bengal regarding a case in which a worker died.[24]

Judging from experience of such cases, a conviction is not very probable. In Assam the life of a coolie hangs at best by a slender thread; with a climate that so saps his vitality, it unfortunately takes very little to kill him; and the shock of such a flogging as would be elsewhere borne with impunity might there prove fatal. . . . Of the numerous coolies flogged by Mr. Dunne, there was very possibly not one who, either just before, or at the time, or immediately after, had not been or was not suffering from fever, dysentery, diarrhœa, or spleen, all diseases of which coolies are constantly dying on the plantations.

When this Mr. Dunne was brought up for trial he was allowed freedom on bail, although the charge of murder was a non-bailable offense, and the Major in whose court he was tried allowed a jury to be composed entirely of tea planters. He was sentenced to one year in prison and a fine of Rs. 500.

[22] *Ibid.*, p. 22.
[23] *Ibid.*, p. 21.
[24] *Parl. Papers*, 1867, L, Paper 124, pp. 6–7.

Wages in the tea gardens have always been somewhat below those in factories. Workers have been willing to accept them because they could live more economically and under conditions more like those of their villages. Moreover, they received considerable concessions. Their families could accompany them and in addition to money wages, which have advanced markedly since 1911–12, even since 1921, they have numerous allowances. They receive concessions of private cultivation, free housing, free medical attendance, free fuel and grazing, and a supply of tea and rice and cloth at less than the market rates. Free meals are also supplied when necessary and most gardens give liberal maternity concessions. Orphans and old or disabled coolies are also fed and looked after. Much attention is also being given to providing pure drinking water and many gardens have now a piped supply laid on in the lines.

Money wages at different periods have been as follows:

Year	Men Rs. As. Ps.*	Women Rs. As Ps	Children Rs. As. Ps.
1873	5–8–0	4–8–0	3–0–0
1901	6–0–0	5–0–0	——
1911–12	5–15–11	4–7–9	2–11–0
1920–21	7–0–9	5–12–7	3–7–10
1927–28	11–7–5	9–3–5	5–8–2
1929–30	10–11–0	8–6–1	5–6–2

* On Indian currency, in brief treatment, see Chapter XV. The rupee contains sixteen annas, and the anna twelve pice.

Rates in the Assam Valley are higher, the corresponding rates for 1929–30 being Rs. 13–8–7 for men, Rs. 11–1–7 for women and Rs. 7–8–6 for children. They are not materially different in South India. All these figures are based upon a theoretical 100 per cent attendance at work; figures for 1929 show that the average attendance was 69 per cent for the Assam Valley and 74 per cent for the Surma Valley.[25]

In Assam, late figures show that the coolies held land equal to about 2/5 of an acre per family, most of which belonged to the gardens and was used for rice and vegetables. The average rental paid per acre of land on the gardens was only 1/3 to 1/6 of that paid to outside landlords and was in many instances less than that paid even to the government.

[25] *Report of the Royal Commission on Labour in India,* 1931 Cmd. 3883, p. 388.

While officials and planters have made much of these extra allowances, labor leaders have belittled them, one claiming that their total was worth not over about two rupees per month per family.[26]

The type of labor organization under which tea has been produced has varied somewhat but far less than in indigo cultivation. A single European manager can administer a tea estate of perhaps 1,000 acres, employing 1,000 hands, only with the aid of efficient Indian assistants. Certain peculiarities of tea cultivation make the task less serious than it would be in the case of some other crops. The laborers are grouped and a large number can be watched by one overseer. Besides being unskilled, the work is of such a character that if improperly executed the error can be detected and the worker required to correct it. Unlike the spinning of yarn or the weaving of cloth, which, if done poorly, cannot be undone and brought up to standard, tea hoeing and plucking, when inadequately done, may be completed without great loss to anyone except the worker.

Furthermore, the work is carried out mainly on the task system. In the clearing of the land each worker or each "gang" is assigned a certain plot to clear and is paid at a given rate only after the work is satisfactorily completed. The same rule applies to the cultivation and pruning of the gardens, after they have been planted, and to the plucking of leaves, which is done almost entirely by women and children under the direction of Indian overseers or *sirdars*. Going through the fields on foot or on horseback the planter can easily detect careless work and thus keep his overseers, and they the workers, up to standard.

In the early days, and in some districts still, something akin to the contract system, to be treated in Chapter VI, was in vogue. The *sirdar* or foreman was made responsible for bringing in laborers and for their performance of a certain amount of work. It was to him that the planter complained of poor work and from him that wages were withheld until all was satisfactory. Indeed, the wages of the *sirdar* were in part a percentage of the wages earned by those under him. This system still exists in many plantations in northern

[26] N. M. Joshi, M.L.A., quoted in the *Bombay Labour Gazette*, June 1924, p. 21. In 1931 the Royal Commission on Labour in India, of which Mr. Joshi was a member, wrote enthusiastically of these concessions as an "important element in the attractions of a garden." (P. 384.)

India, but is more common on the estates of South India and Ceylon.[27]

Most of the work on Indian plantations is done on the basis of time payment to *sirdars* and of piece work to laborers. There are two main types of practice.[28] The first and most common is that wherein a certain minimum task is set which commands sufficient wage for the worker's support, and also guarantees a considerable amount of work done each day. In addition, the laborer is furnished extra work known as *ticca*. There is no compulsion about extra tasks; they are given by the employer to be undertaken by the worker during the busy seasons. In winter, tea requires only hoeing and some pruning; during the eight or nine warmer months the leaves are picked.

A second system, called the "unit system," common especially in Upper Assam, provides payment by piece but differs in that no minimum tasks are set. So much hoeing is worth one anna (2¼ cents) and so much leaf plucking one pice (about 1/5 of a cent).

In 1927, there were 4,289 tea plantations in India with an average acreage of 175. But many are small, except in Assam, Bengal and Travancore. In the Punjab the average area planted is only four acres while in Bengal it is 525, in Travancore, 512, and in Assam, 443 acres. Often the manufacturing for two or three smaller gardens is done at one center, especially where they are owned by a single firm or managed by a single agency, as is often the case. But usually each larger plantation has its own factory. In 1927 there were only 868 tea factories under the Factory Act, that is, employing more than twenty persons. Of these about nine tenths were in Bengal and Assam and employed on the average 73 hands each. In Madras and the Punjab the average number of employees in tea factories is less than half the corresponding number in Assam. In the best factories, machinery has been made almost automatic, so that the leaves are hardly touched after being plucked. The work involves withering, rolling, sorting and packing the leaves. The factory is operated simply as a part of the plantation, although since 1922 it has been under the Factory Act. Laborers are frequently shifted from field to factory, and vice versa, and the factory hours and regulations give the planters much trouble.

[27] See Broughton, *Labour in Indian Industries*, p. 151. Also Ibbetson, *Tea*, p. 39.
[28] Gilchrist, *Wages and Profit-Sharing* (University of Calcutta, 1924), p. 315 et seq.

The marketing of tea has been fairly simple. About eighty-five per cent of the crop is shipped direct to London—always the leading tea market of Europe—where on two days a week there are special sales in Mincing Lane. Other tea is sent to Calcutta where it is sold at weekly auctions and shipped primarily to destinations outside the British Isles. A large amount of that sent to London has ultimately found a market in other countries. Russia was long a leading importer and the potential United States market has been tempting for Indian planters. While a great advertising campaign has increased interest, this country is still a rather poor customer.

India is now much the largest exporter of tea, having overtaken China nearly 50 years ago. Ceylon ranks second, and besides Japan and China, Java is an important producer. But India exports nearly fifty per cent of the total sent out by the five countries.

In 1930 the equivalent of over $200,000,000 was invested in Indian tea planting companies, of which about one fourth was of companies registered in India, and three fourths of companies registered in England. In recent years the plantations in South India which long remained principally in individual hands have also been passing into corporate ownership.

Management remains principally in the hands of Europeans. The direction of an estate requires considerable forcefulness of personality and a systematized management, such as is associated by Indians with the European. Nevertheless the Indians are taking over management of smaller gardens and gardens without mechanical equipment, which latter, in 1921, constituted about one third of the total. On plantations with mechanical power, employing 50 to 200 workers, there were, in 1921, 78 Indian as against 61 European and Anglo-Indian managers. For all concerns without mechanical power there were 252 European and 200 Indian managers. But of the larger concerns, employing over 200 persons, Indians managed only fourteen per cent; and of the very largest, employing 400 hands or more, they managed only eight per cent.

Skilled labor tends more and more to pass into the hands of Indians, even of Indian women, 1205 of whom were so classified by the census of 1921. Between 1911 and 1921 the number of Europeans and Anglo-Indians classed as skilled laborers fell from 219

to 45 while the number of Indians so classed rose substantially.[29]

Ownership is tending definitely to pass into Indian hands. The census of 1921 showed a considerable shift from the situation in 1911. The change in Bengal is given as follows: [30]

Tea Garden Controlled by	1911		1921	
	No.	*Percentage*	*No.*	*Percentage*
Companies with European directors	158	65.8	184	54.1
Companies with Indian directors	18	7.5	82	24.1
Companies with mixed boards	—	—	11	3.3
Privately owned by Europeans	46	19.2	36	10.6
Privately owned by Indians	18	7.5	27	17.9
Total	240	100.0	340	100.0

Production per acre varies with the districts and also with seasons. The highest in 1929 was 903 pounds per acre in the Madura district. The average for the country was 611 pounds. With prices ruling about seventy-five per cent above those of 1913 this allowed handsome gross earnings of about $175 per acre.

The profits to tea planters and to tea companies have been irregular but generally good. The earliest English joint-stock company produced no earnings for some thirteen years but showed handsome profits from then onward. The Jorehaut Company paid an average of 15 per cent dividends during the first 30 years of its existence, and ten London companies earned an average of 9 per cent during the nine years 1878–1886.[31] However, the growth of the industry has frequently exceeded the growth of demand and this has brought several periods of rather acute depression. The steady fall in the price of silver during the fourth quarter of the last century made lower prices possible and larger sales in gold-using Europe and America. But over-extensions resulted in glutted markets and the last decade of the century was a lean one. Better times set in, however, and in spite of tea control during and since the World War, and a few bad years, tea companies have recently declared good dividends. In the post-War period rates have been especially high. Average dividends of eight companies during the years 1926–9 were 38.5 per cent. Even in 1913 the same companies paid 24 per cent. Of companies incorporated in India, 98 declared dividends averaging 23 per cent in 1928; and 74 paid an average

[29] *Census of India*, 1921, I, Pt. II, p. 250. Also 1911, I, Pt. II, p. 332.
[30] *Census of India*, 1921, V, Pt. I, p. 389.
[31] White, *Journal of the Society of Arts*, XXXV, p. 741.

of 20 per cent in 1929.[32] The oldest company registered in England, the Assam Company, which now has 12,688 acres under cultivation, paid an average of 22 per cent in dividends during the ten years 1917–26, while for the same period the Jorehaut Company, founded in 1859 and having 10,000 acres in tea, paid an average of 30 per cent annually.

Coffee

Another plantation industry which has developed under the influence of Europeans is coffee growing. Indians drank no coffee, but the East India Company took an interest in coffee growing as early as 1823, and in that year gave a charter for the establishment at Fort Gloster of a single concern which was to undertake a cotton mill (The Bowreah), a rum distillery and a coffee plantation. In 1830 it was stated that greater inducements had been given to coffee planting than to any other sort of economic activity.[33] This consisted chiefly in the grant of land on long lease, at a time when indigo planters, who were also desired, were under severe restrictions.

Coffee planting was tried in a number of places but was not at first successful anywhere. In 1830 some 4000 acres were under coffee cultivation in lower Bengal, but the crops were poor and it was believed that the sun was too hot for the plant.[34] Some experiments in the highlands of Southern India[35] have proved more successful. Within a few years Mysore and the hilly regions surrounding it became an important coffee producing area and remains today the sole source of supply in the country. This pioneering was wholly the work of Europeans, although coffee seems to have been brought to India from Arabia by a pilgrim one or two centuries earlier.[36]

Coffee planting has been much less successful than tea planting, and many of the estates originally laid out for coffee have been turned to tea,[37] and more lately to rubber. The growth of the industry was steady between 1830 and 1860 and about the latter

[32] *Indian Trade Journal*, Supplement, Feb. 5, 1931.
[33] *Parl. Papers*, 1831–2, X, Part II, p. 494.
[34] *Ibid.*
[35] *Parl. Papers*, 1831, Enquiry into the Affairs of the East India Company, Vol. V, p. 498.
[36] Watt, *The Commercial Products of India*, p. 367.
[37] Ceylon once had large areas under coffee but the trees were killed by a pest and tea was planted instead.

date there was a regular boom when many Europeans set out plantations. This, it will be remembered, was approximately the date at which the boom came in other enterprises, such as tea and banking, and may be credited mainly to the commercial activity due to the abnormal demand for Indian cotton during the American Civil War. At the height of the boom, however, tree borers appeared and a few years later the deadly leaf-blight. These troubles were soon followed by an equally deadly enemy in the form of a glut of cheap coffee from Brazil. Because of this competition, during the decade 1877–1887, as many as 263 plantations were abandoned.[38] During the next decade coffee suffered still more, and despite temporary recoveries, the industry has steadily deteriorated.

This business has been on a smaller scale than tea or indigo cultivation and has not caused similar social disturbances. The coffee planters were, however, able to use the same means given to tea planters—namely, criminal prosecution—in order to hold their laborers on their estates. Also the workers here were of the same ignorant, superstitious type and there was trouble enough for the new planter.[39] But since the number required was not so great, laborers could be drawn from the dry areas near by. Recruiting was therefore unnecessary. But perhaps most important of all, the area to which they went was exceptionally healthful, just the opposite of Assam. Mysore and the neighboring highlands of southern India possess, indeed, one of the really delightful climates of the world. With an altitude ranging from 1500 to 5500 feet, it has very beautiful highland scenery, and an equable temperature without too much rain. Lucky was the family of workers whose lot was cast in this region.

Coffee plantations are smaller than the average tea plantation, the average of holdings over ten acres in all India in 1927 being only 48 acres. Much the largest tracts were those in the little State of Cochin, where 14 plantations average 166 acres each. In Mysore, which has over half the plantations, the average coffee acreage is less than 40 acres. There are also numerous little fields under ten acres in size, operated by small farmers, which add a small percentage to the total area. Few plantations are large. In 1921 only seven employed over 400 persons. The largest number employ be-

[38] *Journal of the Society of Arts*, XXXV, p. 520.
[39] *Ibid.*, pp. 523–524.

tween twenty and fifty persons; 55 per cent of the hands are on estates employing between 50 and 100 persons.

Work is not so highly organized as on tea estates, especially the larger tea estates of Assam, Bengal and Travancore. Much simpler machinery is required and only a part of the preparation for use is carried out in India. About fifteen per cent of the larger plantations use mechanical power for removing the pulp from the coffee berry, but much of this work, as well as the removal of the parchment from the seed itself, the sorting and preparing for shipping, is done in establishments controlled by dealers at the trading centers, especially at the smaller ports on the west coast of the peninsula. In 1927 there were 16 such factories employing an average of 275 persons each. On many smaller estates the pulp is removed by simple hand processes such as have been used in Arabia for centuries. The whole fruit is simply dried and shipped as *cherry* mainly to the United Kingdom and France. Final treatment then takes place in the country of destination.

The area in coffee has declined markedly since 1885, when it had reached 237,500 acres. By 1894–5 it had fallen to 133,000, by 1904–5 to less than 100,000, and in 1914–15 to 88,000. With the rise of prices during the World War and the post-War period the industry became more profitable and the area rose gradually to over 150,000 acres in 1926–7, only to fall in 1929–30 to 75,000 acres.

Production is somewhat irregular. It is said that a good year is likely to be followed by one or two, if not three, bad years. Many plantations are now old and will soon need to be replaced. Yet great attention has recently been given such matters as manuring and the crop has been well kept up. In 1885–6, 34,200,000 lbs. were produced and since then, in all except two years, between that amount and 20,000,000 pounds. In 1929–30 it was very low, being only 12,500,000 pounds. The quality is particularly good, and therefore, the price averages high.

In the boom days essentially the same sort of working arrangements were made as in the tea districts. Whole families came and occupied crude housing on the estates. While work is not so steady as in tea, a large number of hands are required throughout the year while temporary hands are brought in during the busy season. Since the estates are smaller, only about half as many hands per unit are

required as on the tea plantations. Also the surrounding regions have long been thickly settled and people from the immediate neighborhood are much more generally employed. In fact, though only about half the people employed in busy seasons are permanent, fully forty per cent of the permanent staff in 1927 lived off the plantations. The daily average number of persons employed in 1927 was about eighty-four thousand, of whom about forty per cent were women and children. This is less than one tenth the numbers employed on tea estates.

Ownership of the larger plantations is generally in the hands of Europeans, but there are also many Indian owners. Of 436 plantations employing ten or more persons, in the two States of Mysore and Coorg, which provide 75 per cent of the area in plantations of more than ten acres, in 1921 only 30 were owned by registered companies all of which had European or Anglo Indian directors. Of the 406 plantations owned privately, 150 were owned by Europeans and Anglo-Indians. The remainder belonged to Indians—201 of them to Hindus. Private owners generally manage their own estates while employed European managers are found in the main on estates operated by companies.

Coffee growing profits have not been conspicuous and there seems no prospect of great expansion in the industry.

Rubber

The most recently developed plantation industry in India is that of rubber growing, as yet less important than either tea or coffee. Rubber was introduced from Brazil during the eighteen seventies at the instance of the government of India, although the first planting was in Ceylon. The government has continued its interest and for many years has operated, though with small results,[40] some estates in Assam. Provincial governments have also assisted the industry. The government of Burma introduced an experimental plantation, and the Maharajah of Travancore was responsible for the introduction of rubber into his state about 1900. From there the planting has spread, often in combination with tea planting, to the neighboring territories of Cochin, Coorg and British Malabar. Burma and Travancore are the principal producing areas. But the total production amounted in 1922 to only about two per cent of

[40] McIntire, *The Resources of the Empire, Rubber, Tea, Cacao*, 1924, p. 87.

the world's annual supply.[41] Only a comparatively small area possesses the proper combination of soil, drainage, temperature and rainfall.

Leadership in planting has been taken mainly by Europeans, often with large joint-stock companies registered in London. Progress was slow at first but became more rapid after a rubber boom in London in 1906 so that by 1911 twelve European companies had a total of 17,000 acres planted in Travancore and planting showed great activity.[42] In 1910 the Burma government, having proved the practicability of rubber growing, sold its plantation to a private company.[43] In that same year the South India companies paid their first small dividends. At the census of 1911 there were 48 rubber plantations employing some 13,500 workers who were fairly evenly distributed between the four areas—Madras Presidency, Burma, Cochin State and Travancore State. By 1921 the number of plantations employing more than ten persons had increased to 135, the acreage to 124,000 and the hands employed to over 17,000. Burma and Travancore had forged ahead and they have progressed still further since 1921.

The great extension of planting initiated during the War period, when better prices were offered, has continued. In 1919 the planted area was 118,000 acres and this grew steadily to 172,000 acres in 1930. In that year Burma furnished 55 per cent and Travancore 30 per cent of the total area.

The size of plantations varies widely and there are many small estates besides several very large ones. The average area per estate planted to rubber in 1929 was only 50 acres and of this only two thirds was actually tapped; so the average tapped estate was only 33 acres and it employed 14 hands. Only one fourth of the estates, and these by no means the largest, were provided with some sort of mechanical power for the simple processes which they perform. In 1921 only seven estates had more than 400 laborers each. Moreover nearly one third of the laborers live off the plantations and one eighth are temporary hands.

The high prices for rubber, ruling during part of the years 1925 and 1926, brought large profits to the plantation owners; since the

[41] Report of the Stevenson Committee, *Parl. Papers*, 1922, XVI, Cmd. 1678, p. 6.
[42] *Travancore*, A booklet prepared by the government of the State for distribution at the Wembley Empire Exposition, 1924, p. 42.
[43] McIntire, *op. cit.*, p. 87.

succeeding slump, plantations have not paid good returns. The average dividend paid by 13 companies registered in India for the years 1914–22 inclusive, was 5.32 per cent and companies operating in Burma showed similar earnings. This business is still young and while large sums are expended in new planting, the earnings are not very encouraging. The attempt to valorize rubber had some temporary effect but conditions are now very bad.

Whether rubber will ever become a great industry in India is doubtful as apparently only a small part of the country is really well adapted to it.

CHAPTER V

COTTAGE AND UNORGANIZED INDUSTRY

IN 1921 over 33 million Indians, one tenth of the population, were dependent upon "Industries" for their livelihood, and about 16 million, that is one half of this tenth, were actual workers. Yet in the same year only 1,266,395 persons were engaged in establishments coming under the Factory Act. There are now perhaps eight times as many "industrialists" outside as inside the factories. While these figures cannot be taken as absolutely correct they show beyond doubt the very great importance of the so-called cottage, handicraft, or unorganized industries. Some of the occupations in this group would hardly be classed as "industry" in America. For instance there are three quarters of a million "sweepers, scavengers, etc." and a large number of workers in personal service "trades," such as the washermen (1,100,000), and the barbers, hairdressers and wig-makers (832,000). Yet the great bulk of these people make by hand articles which for the most part are produced by factory processes in the United States. They are employed, alone or with very few helpers, in their homes or in small workshops in countless villages and towns where they produce by hand generally for local consumption. Their work is essentially unorganized. Indeed so important is this matter of organization that in India the terms "organized" and "unorganized" are used to denote factory and non-factory industries.

Textiles. The most conspicuous example of these handicraft industries is the textile. In 1921 something over three million people were working outside factories in this industry. Over half of these were engaged in the preparation and weaving of cotton cloth but many worked in silk, wool and jute and a great many in dyeing, lace-making and other allied industries. Recent surveys estimated the number of hand-looms in the country at two million and the proportion of the annual cloth consumption manufactured on these

looms at twenty-nine per cent.[1] No country except China, which in 1927 was estimated to produce 75 per cent of its cloth in this way,[2] depends so much upon hand-weaving.

Western clothing has become so standardized to the factory régime that spinning, weaving and dyeing is done only in factories. In India, in both the coarser and the finer qualities of goods, the hand-looms have been able to continue; but in the former they are fast losing their hold. A part of their success is due to the prejudice of the people in favor of hand-made coarse cloth, *khaddar*, which they believe to be more durable than factory cloth. During the past decade, when much political capital has been made of the competition with British cloth, more hand-woven *khaddar* has been produced and consumed; but the factories also took advantage of the cry and furnished an imitation which had a great sale. For patriotic reasons there is still a large demand for hand-woven *khaddar*, but it seems unlikely that this can continue. Comparable cloth costs far more when hand-woven, even at the pitifully low wages paid the weavers. There are also intermediate cotton products, goods which can be made in mills but for which there is a better demand when hand-woven. These are medium and higher grade cotton cloths for both men and women. By using high quality yarn and accepting very low wages, hand weavers have been able to furnish many of these goods.

One of the chief reasons why hand-woven is more popular than machine-woven cloth is the variety of patterns which can be produced. Indians are so accustomed to an individual stamp on every article that they are prejudiced against the standardized factory cloth. Mohammedan men wear plaids which are of infinite variety while borders are common on Hindu men's, and figures on Hindu women's, clothing. Hand-weaving provides these in an endless selection of exclusive patterns. This desire for special designs is all the more important in silk fabrics which are used for ladies' high-grade *sari*. Each dress length is woven independently and the pattern varies for its different parts. It is impossible to weave these economically on a power loom. Besides, the figures of gold or silver thread which are woven in, more or less like embroidery, can be produced only by skillful hand-weavers.

[1] R. D. Bell, *Notes on the Indian Textile Industry, with Special Reference to Hand-Weaving*, 1926, p. 6.

[2] Economic and Financial Section of the League of Nations, *Cotton*, 1927, p. 18.

In old India, hand-spinning was an important occupation though it was not followed by any one caste. The women of each household generally did their own spinning, but a great deal of this work was also "put out" to other women, especially to widows. As late as 1914 this was evidently common in Bengal.[3] But this work has now been almost wholly abandoned in favor of the cotton mill. Hand-spun yarn is much less regular in size, less strong,[4] and far more expensive than factory-spun yarn. The recent attempt at revival of this work by Gandhi and his followers is mainly of political significance, and is aimed to exalt Indian as against European customs and institutions. The movement for hand-spinning and weaving has, however, one economic virtue in that the typical Indian rural family spends many months of unemployment which might be thus utilized. To spend a month of this unprofitable time in spinning or in making a piece of cloth is better than to spend it in idleness and to exchange a share of the already meagre supply of grain for factory-made cloth; yet on account of the great relative economy of the factory method, hand-spinning has little chance in competition and hand-weaving is endangered. Hand-weaving is much more prominent in some parts of the country than in others, flourishing best in the South, where old customs are more firmly fixed. Even the cotton mills of Madras Presidency tend to specialize in producing yarn to be woven on hand-looms, as most oriental mills did until a few decades ago.

While hand-weaving still retains great importance, it has been modified by the widening of the market for cloth and the invasion of local markets by factory products. Under the old conditions many weavers lived in villages and worked directly for their neighbors, and in urban areas many were essentially independent and worked on their own raw materials for competitive sale in a local market. But now that marketing is done on a larger scale, requiring more skill and capital than the weaver possesses, he has become increasingly dependent upon a merchant-capitalist. Often the worker is still technically independent and supposedly buys yarns and sells cloth; but usually he is bound to deal with only one merchant to whom he is heavily in debt. Instead of being an "independent craftsman"

[3] R. Mukerjee, *The Foundations of Indian Economics*, p. 302.

[4] See account of tests made by the textile expert in the Government of Madras, *Hand-loom Weaving in the Madras Presidency*, 1925, p. 62. For instance, the breaking strength of mill yarn varied between three and a half and four ounces while that of hand-woven yarn varied between one and three ounces.

the hand-weaver of modern India has fallen into one of the most unfortunate forms of economic dependence. Like the hand-loom weavers in Europe in competition with the earlier power factories, the hand-loom workers in India have suffered greatly from lower prices of factory-made goods, both from abroad and from Indian mills. Especially those who worked in higher grade cottons, the flower of India's craftsmen, have been subjected to impoverishing competition.[5] Many have been forced out, but a large number have been able to remain.

The hand-loom weavers, in large part, work in shops which are also their living places. In Sholapur it is estimated that 2500 persons are thus employed in 250 such shops. Some weavers erect crude huts in which they work, while others rent a shop, and a large number work at piece-rates for other weavers who own a house and looms. A few are large employers, hiring as many as fifty hands, but generally there are only three or four families in a workshop. It is common for both husband and wife to work while the children sprawl about the room or in the court. Men do the weaving and women the preparing. Cooking is done in the same cramped quarters and at night the warps are rolled up and the people sleep on the floors. As in factory districts, two or three families often occupy one room, but in this case besides using it for a kitchen and sleeping room, it serves as a workshop as well.

Much has been done, both by governmental and by philanthropic agencies, such as the Salvation Army, to improve hand-weaving, but so far their efforts have been only partially successful. Much attention has been given to new types of looms, to types of cloth, to coöperative financing and some to marketing arrangements. Perhaps the best results are shown in the improvement of looms. The fly-shuttle [6] is now widely employed in weaving plain goods. The Government conducts numerous educational factories, even paying small wages to weavers to induce them to learn to use improved looms, and sends out travelling demonstrators. Representatives of the Salvation Army have also made noteworthy mechanical improvements in hand-looms. Remarkable success in the introduc-

[5] In 1924, a wide survey in Bengal showed that "the ordinary weavers cannot earn more than six annas (13½¢) per day." *Survey of Cottage Industries in Bengal*, 1924, p. 47.

[6] In some places families which use this more efficient loom are ostracized by other weavers on the ground that they are trying to secure more than a fair share of the profits.

tion of new looms and especially of new types of cloth has been attained by a German Protestant missionary group called the Basle Mission. Prior to the World War it had developed a very extensive industrial work among its converts on the western coast of the peninsula, giving its chief attention to hand-loom weaving and tile-making. Textile developments under their control are suggestive of those in the Basle district of Switzerland fifty to seventy-five years earlier.[7] Jacquard looms were much used and a great business in high-grade figured cottons, such as table and bed "linens," was developed. Since the World War this industry has come under new management and a power factory has been set up.

Much attention has been given to simple machinery for the preparation of yarn for the loom but with no great success. One expert claims that in the conversion of yarn into cloth by the old methods it costs fifty per cent more to do the winding, warping and sizing than to do the weaving.[8] And he further claims that normal earnings are half an anna (1⅛¢) more per hour for weaving than for preparing.[9] This same gentleman has perfected a warping and sizing machine suitable for use in a hand-weavers' community but it has not become popular. Weavers are apparently willing to do a certain amount of warping and sizing out in the open air even at the lower rates which are here suggested. In fact, after sitting all day at the loom, this work, on their feet in the open, provides a welcome change of position and movement.

There have also been many attempts to provide financial aid in order to free the weaver from the clutches of the money lender. But this too has met with only an indifferent success.[10] A few patronize the coöperative society, but most do not. With his skill in marketing, the individual employing merchant is ready to trust the weaver to a greater extent than is the weaver's coöperative society. Yet there are some successful societies and the movement deserves every encouragement.

These attempts to bolster up an out-of-date industry have been comparatively unsuccessful probably because the odds are too great.

[7] See Rappard, *La Révolution industrielle et les origines de la protection légale du travail en Suisse*, pp. 207–8.

[8] D. M. Amalsad in *Report of the Indian Tariff Board on the Cotton Textile Industry Enquiry*, 1927, III, p. 110.

[9] *Hand-loom Weaving in the Madras Presidency*, p. 67. This is perhaps natural as a large share of the preparatory work is done by women and children, commonly of the weaver's family.

[10] *Survey of Cottage Industries in Bengal*, 1924, p. 99.

Cheaper factory products tend constantly to be adopted; and while these improvements have softened its shock they offer little prospect of actual rehabilitation for the industry.

Leather. Certain types of live stock have, as we have already seen, played a large part in Indian economy. The most conspicuous of these are cattle, goats, and water buffalo.

This large number of animals produces a great quantity of hides which under modern conditions would support a large tanning and leather manufacturing industry. In India, however, this industry has been little developed. It appears that long ago the idea of blood sacrifice was carried to such extremes that a reaction occurred and produced the idea that no living thing should be killed, whatever the provocation. This is the position of the orthodox Hindu, who, therefore, refuses to eat meat of any sort. In Hindu communities therefore, these animals were not butchered. In case of death from natural or artificial causes, carcasses and skins were turned over for removal to certain "untouchable" members of the community who, because of lack of other food, consumed the meat and crudely tanned the skins which they later worked up into various leather articles for use by the other outcasts and less devout persons.

Mohammedans, whose ancestors came from a more nomadic existence, are accustomed to rear animals for food, and they have no scruples about engaging in hide, tannery or leather working businesses. Yet the Mohammedans have come to share certain of the social prejudices of their Hindu neighbors. The dirtier part of the work, such as tanning, was largely left to the despised *chamars* while Mohammedans gave more attention to butchering, the meat trade, and wholesale hide and leather dealing. Many also engaged in leather-working, though severe competition was always offered by the lowly *chamars*.

With the growth of foreign trade there has been a large export business in hides and skins (the latter from sheep and goats) but many of these undergo some treatment in the country. Over 1,160,000 persons work on skins and leather, and the great majority are small handicraft tanners. Most of the work which in America would be performed in large tanneries and in leather goods factories is there carried on in small household workshops. Every village has its *chamars* who also do both menial and field work and live mainly on the village waste. In some places large colonies carry

on, so far as they can, the tanning and working up of leather. It is said that 2000 men belong to such a community near Calcutta. As might be expected, their quarters are isolated because of the stench and their earnings are low. Their methods are very primitive and their products poor. The *chamar* buys a few skins which he treats in crude vats where putrefaction and hand-scraping perform the important parts in the removal of hair and bits of meat. The skin is then sewed up as nearly as possible water tight and hung up, head downward, over a large receptacle filled with tanning fluid made from bark. Since leakage is bad, the tanner and his family dip up the escaped liquid and pour it back into the skin. Boys of ten years and upwards are often at work and sometimes two or three families conduct operations in common. After the process is completed, the skin may be sold to leather dealers or to leather workers, or may be made up by the tanner himself or his associates into finished goods, such as the crude country shoes. These partially tanned hides are often sold to dealers who ship them to Europe or America for proper tanning.

As a household industry, tanning has little to commend it. It owes its continuance mainly to the fact that a degraded section of the people have done the work traditionally and have nothing else to which to turn, while the country furnishes a large supply of low-grade hides and skins. In all cases, it produces very poor results at the cost of human degradation. Tanning is an unpleasant occupation, and is much better done, both from the point of view of products and of human costs in labor and malodor, in large, mechanically equipped establishments. Small tanneries in every village can hardly be looked upon other than as nuisances and no wonder people who operate them are looked down upon. In this case, the added efficiency of mechanical methods is reinforced by more tolerable human conditions rather than offset, as in some factory industries, by less agreeable conditions.

Wood. In wood-working, the contrast with western methods is not so marked. Most of the workers are listed as "carpenters, turners, joiners, etc.," though many are engaged mainly in work which in America would be done in factories, that is, in the making of tools, furniture and vehicles. Increasing numbers are now locating in the large cities to meet the urban demand, but wood workers are most numerous in the country villages where they were important members

of the old "manorial organization." Their scale of living is that of the rural group, and generally they are paid in kind or given the use of land, though lately they often receive rewards in cash. Carpenters also build houses, outbuildings, and fences and make repairs as in the West, but since so small a proportion of Indian houses are constructed of wood, that work is less important than the work on tools and furniture.

Where craftsmen are employed, repairing is of course economical, whereas under the present factory régime we often find it actually cheaper to discard the damaged object and buy a new one. Only where repairs are relatively simple, such as inserting new interchangeable parts, are they economical in a country in which manufacture is carried out under the factory system. In India much of the handicraft work is in the nature of repairs to used equipment.

Some of the work of this group could be far better done in factories. Wagons, farm implements and tools and house furnishings could be made of better style and finish and with greatly increased output, in factories. The drawback would be the extra charge necessary for more transporting of both raw materials and finished products. Most family incomes are too small to permit the use of any but the least expensive articles. Since the wood-working families can support themselves in wholesome surroundings very cheaply, and since passable raw materials are available in almost every village, it is possible that, with the present demand, the net result is not less than the factory would bring.

These workmen are commonly independent home workers who are able to move at their own pace. There is nothing of the drive and exploitation of the factory or of the smaller shop in which wage-workers are used to produce for sale in a market. These are local men working under conditions of their own making and on order for hereditary customers. Given the demand to which they cater, theirs is among the most successful of the ancient crafts remaining.

Metals. Metal-workers fall into several groups, the most important division being that between persons belonging, like so many of the wood-workers, to the group of village trades and workers employed in shops to produce for the market. Over 700,000 men and women work in metals and over 100,000 of these are employed on brass, copper and bell-metal wares which are used for kitchen

utensils and by the more affluent for table ware. These latter goods are produced in small urban workshops, which shops, in turn, are employed at piece-rates by the *mahajans* or merchant-capitalists.

But most of these people work on iron. Corresponding to the village carpenters who keep the wooden parts of farmers' tools and furniture in condition, there are blacksmiths in almost every village, of which in 1921 there were 686,000. To some extent these men do work which would be performed by local blacksmiths or mechanics in America, but they also make directly from raw materials the metal parts of the tools, implements and vehicles which would here come from factories.

The blacksmiths are in a situation not unlike that of the village carpenters. Their pay and standards of living correspond roughly to those of the carpenters, indeed not infrequently both functions are performed by the same person. There is a marked tendency for the making of new metal tools to be taken over by factories. This is apparently due to the greater relative economy of factory production of metal goods and to the greater ease with which they may be shipped. Now that iron and steel are mainly produced in well-defined centers, this makes it natural also to centralize their further fabrication. However, there is a larger demand for the work of local smiths in repair work. Tools require frequent fixing and sharpening, so a large share of their work remains. Also the growth of commerce has opened up new opportunities for them in piece-work for merchants who either furnish raw materials or pay them piece-rates for such articles as knives, cleavers and other hand tools. Again the easier transportability of metal goods seems to be the chief factor in the difference. Knives, hoes and axes may be easily shipped but furniture and wagons occupy too much space and are too easily broken.

The group working in shops for the market are in a somewhat different situation. Typical of these are the scissors makers of Meerut, and the brass and bell-metal workers of such places as Benares and Calcutta. When merchants begin producing for profit, such shop masters as are able to market their own wares do the same. They expand their forces by hiring journeymen commonly at piece-rates. These small shops sometimes present some of the worst features of the factory system with few of the advantages of either the factory or the handicraft systems. Equipment is always

simple, and not infrequently, children and adults are employed under conditions very unfavorable to health. Such establishments often use simple mechanical devices for such work as grinding and polishing; but, since they have no mechanical power, these are turned by hand. For an all day task, this is very hard work, and some of the most unfortunate workers, both old and young, are employed at this heavy work. As in the factories, they tend to live under unsanitary conditions; and since the Factory Act does not apply to them, their entire life is spent under unfavorable surroundings. Hours are long, and some of the most heartless sweating to be found anywhere occurs in such places.

There is little tendency for this work to be done in larger factories. Such goods as scissors, tools, and surgical instruments—copies of European models—are made by hand, and show no tendency to change. A few modern brass shops, with mechanical power for polishing, are in operation and small aluminum factories are becoming common, but most of the kitchen and table goods are cast, and these small shops are able to compete in their manufacture.

Ceramics. Ceramics is also a prominent industry in India. As in many phases of Indian life the use of crude pottery for a large majority of the dishes and vessels of every day life is enjoined by religion. Since dishes become so readily defiled they must frequently be destroyed. A custom which an Occidental finds very unpleasant is the dropping and breaking of one's dish at a social function immediately one has partaken to his satisfaction. This is actually very polite, for it insures that no one else will ever, even by accident, be allowed to take food from the same dish. On other occasions, as when a death occurs in the family or there is an eclipse of the sun, all pottery in the household must be broken.

The potters' caste occupies a middle position, though it is said that the snipping off of the throats of jars compromises its respectability. In all nearly 1,100,000 workers are employed in ceramic industries, the majority being village potters working in their little home shops. The potter also makes clay toys, clay images and curbs for wells. A smaller number of persons, generally in larger groups, make the crude Indian brick.

The potter with his family forms an essential part of the village organization and brings up his son to follow in his footsteps. His implements are extremely simple, consisting of a wheel, generally of

wood but laden with mud to give the effect of a fly wheel, and a few pieces of wood for shaping. The wheel sets on a wooden base and the workman revolves it horizontally by occasional vigorous spins. Clay and coloring matter are generally from nearby ponds and woods.

Since he requires bright sunshine for the first drying of his products, the potter cannot work during the rainy or monsoon season. He therefore usually carries on some agricultural operations on his own account, though in his own craft he may merely work for others at wages. The receipt of grain for the making up of special orders, such as for a festival or a wedding, is becoming more common, but he is often paid in cash for all the vessels which the family needs. At the rural markets pottery is commonly on sale, and about the towns and cities this is an important trade. Like the oil-man's business, that of the potter remains fairly firmly fixed in the customs of the country but it tends to depend less upon customary relationships and more upon cash and contract.

There is a slow movement to displace pottery by other materials. We have already noted the use of brass and bell-metal ware by the well-to-do and there is a rapidly growing use of aluminum. All sorts of enamelled dishes were long tabooed—it is said because of a feeling that bones may have been used in producing the glaze—but among the educated this prejudice is now passing away, and china-ware is much in demand. The potter's business is gradually slipping from him, but so slowly that probably he will make a fairly satisfactory adjustment.

Vegetable Oils. Chemical industries give employment to many, most of whom are engaged in the extraction of vegetable oils from seeds. Every Indian family uses large amounts of vegetable oils for illumination, cooking, toilet, and ceremonial purposes. Kerosene has tended to displace this vegetable oil for lighting, but for the other uses the old customs still prevail. In old India, nearly every village, especially in the main agricultural regions, had its oil presser. Sometimes the pressing was done by ordinary villagers but in the northeast the oil pressers constitute a caste of middle grade, the *teli* or *tili*, fit to handle food which is later to be consumed by the higher castes. They commonly hold land in the village and are partly dependent upon agriculture. The methods of extraction are very crude. A small wooden mill, consisting of a mortar and a pestle turned in it by a bullock, squeezes a fair proportion of the oil from a variety of seeds. A

few variations in the methods are noticeable and are generally accounted for by some mythical tale, such as the story that "The god Siva, wishing to rub himself with oil, made, from the sweat of his arm, a man whom he named Manohar Pal, and suggested to him the oil-mill." There are several sub-castes, one degraded because they began using only one blindfolded bullock instead of two which are allowed to see. Another story tells of the creation by the goddess Bhagavati of two men whom she ordered to produce oil. One got the oil quickly but in order to do so made a hole in the bottom of the mortar so the oil could run out, while the other mopped it up from the mortar with a piece of cloth. The goddess was so incensed at having oil produced in the former way that she consigned its inventor to a lower caste. Certain recent improvements have resulted in lower ranking for the persons who introduced them.[11]

This industry remains in spite of the considerable development of modern oil milling and the very large continuous export of oil seeds to Europe. In 1927, there were 211 oil factories in the country employing 10,800 persons, or an average of 51 persons each. These large mills were fairly well scattered through the provinces of British India, but the major portion of oil pressing is still done by the village oil-man.

A number of circumstances combine to keep this industry alive. The people object to oil which has "been in contact with iron" and therefore, continue to demand the country-made product.[12] The cost of production is also extremely low in the village because the equipment is so simple and so easily made at customary rates by the local carpenter. Like that of other local workmen, the labor of the oil-man and his family costs only a little because for so large a part of the year they have nothing else to do. Likewise the labor of the small cattle used to turn the mill is very cheap because they eat so little. There are no charges for transportation either of raw materials or of finished product and no need for an outside financier. As the entire process is carried out on a basis of tolls, no money whatever is involved. The further fact that the little wooden mill extracts only a portion of the oil content involves no great loss because the refuse, or "cake," is used for cattle-feed and is so much the more valuable.

[11] See Risley, *The Tribes and Castes of Bengal*, II, p. 306.

[12] This parallels the early American insistence that an iron plow "poisoned the ground," an idea now prevalent in India. In one Indian village I was told that sugar from which the moisture was removed by tramping with bare feet sold at one rupee more per *maund* than that pressed by machinery.

For many years India has exported great quantities of oil seeds, the most valuable of which are linseed, ground-nuts, rape, cotton, copra, castor, sesamum, poppy and mowra. In turn the few mills in India and certain importers are putting the corresponding factory-made oils on the market. Among urban people these are gradually gaining in popularity but the rural districts seem likely to continue the use of locally made oil.

The situation of the oil producers is by no means attractive, yet relatively it is not bad. They have a secure place in the village where food is wholesome, if plain, where the air is pure and wants and needs are few. Partially dependent upon village agriculture and having their own land, most of these families remain as prosperous as the general middle element in the farming community.

Rice and Flour. "Food industries" naturally employ a great many persons. Formerly rice was hulled by pounding it in mortars with heavy sledges and flour was ground by hand between revolving stones. Of nearly three quarters of a million so employed in 1921 over eighty-four per cent were women. But the occupation is passing away because large rice and flour mills and local power grinders are becoming increasingly popular. Over 300,000 persons are entered in the census as "corn parchers" and there are very large numbers of sweetmeat makers, bakers, distillers, etc. Practically all of these work in the old ways and seem unlikely soon to be displaced.

Sugar. Large amounts of crude sugar are produced by simple means but this is a household rather than a handicraft occupation. A large proportion of the Indian villages grow sugar cane in their own fields and this is converted, by means of simple, cattle-propelled, extracting equipment and crude apparatus for reduction, into a coarse brown sugar called *gur*.

Sometimes, manufacturing is done on a coöperative basis. A group of farmers will own and work coöperatively the small mill turned by bullocks. The cane juice is then boiled and reboiled in a large iron pan which is also owned by the villagers in common. When the sugar has been precipitated it is stored in a community warehouse to allow for further draining and crystallization.

There are also many "factories" of the same sort operated seasonally by individuals or families, plus a number of hired hands. In such cases the farmers are paid according to the juice content of their cane and the whole enterprise is carried on for profit. As

in cotton ginning and pressing, a poor type of country labor is driven for long hours. In 1921 there were 466 such mills without mechanical power, each employing over 10 persons. Of these, 293 employed between 10 and 20 persons each, while one large factory had over 100 hands.

Despite the apparent success of so many coöperative factories, they should be discontinued. The percentage of sugar extracted is very low and the quality is poor. Indeed, like the poorly tanned hides, much of this material is taken to the modern factories for further treatment. There are now 45 modern sugar factories in the country. It seems inevitable that this industry will pass gradually from the home to the factory.

Some of this sugar is used in the homes of the producers, but there is also a large sale. The United Provinces, the Punjab and Bihar and Orissa are the chief producers. Agricultural experiment stations have succeeded in improving the types of sugar cane and a great increase in production is expected.

Sugar consumption appears to be increasing and affords one evidence of a rising standard of comfort for at least some of the people. Consumption of sugar of all sorts amounts to more than eleven pounds per capita and about three fourths of this is home-grown.

Tobacco. Nearly all the tobacco consumed in India is smoked in the form of tiny hand-made cigarettes called *bidi*. These are made in little sweatshops or factories owned by individuals or companies and located in towns and cities throughout the country. Local labor is generally employed and in the country the workers come mainly from the agricultural classes. Everywhere a great many women and children engage in this work. In the Central Provinces alone there were, in 1930, 866 such factories, employing 18,257 adult males, 10,073 women and 13,191 children.[13] Forty-three per cent of these children were 12 years of age or less and in many cases the merest tots are employed. Of these 866 establishments, 185 employed over 50 persons with an average of 91. In Bombay in 1930, there were 28 *bidi* factories, only 3 of which employed over 50 persons each. The women and children sit on the floor and roll small bits of poor tobacco in *temburni* leaves and tie them with thread. Sometimes families work together and at others the men and women are sep-

[13] *Royal Commission on Labour in India*, 1931, Evidence, XI, p. 236.

arated. Payment is by the piece, ranging from seven annas to twenty annas per thousand *bidis*.

Large workshops are often quite agreeable working places as they are seldom more than sheds with ample light and ventilation and with no machinery. Smaller groups often work in out of the way places, especially in cities where rents are high. Sometimes they occupy tiny attics and even the space under porches. In many other places workers are crowded very closely in small rooms and ventilation is wholly inadequate.

Hours are irregular but are not unduly long except for children and at certain rush times for adults. In many cases, work is begun very late in the morning and since wages are by the piece the work-people set their own hours. Wages are paid frequently and there is much movement from one shop to another.

Only a little of this work is done on the putting out basis because of the necessity for supervision. It is too easy for workers to insert refuse instead of tobacco. The industry cannot be expected to take the mechanized factory form since the materials necessary to provide the customary taste do not lend themselves to the use of cigarette machinery. While such simple, unskilled labor is so cheap it is unlikely that western cigarettes will displace *bidi*.

Industries of Dress and the Toilet. These employ hat, cap and turban makers, tailors, dressmakers, darners, embroiderers, laundrymen, barbers, shampooers, tatooers, etc. In the succeeding chapter we shall see that some tailoring and much shoe-making is done under factory conditions but the great majority of all these operations are performed in the old ways at the peoples' homes. Tailoring plays a small part in Hindu dress, partly due to religious custom, but among Mohammedans sewed clothing is as common as among Europeans. This work was formerly done by local tailors who were paid in goods, and much of this still continues. Yet the coming of the sewing machine several decades ago and the growth of towns have changed this situation. Sewing has become cheaper and "dressmakers" do all sorts of sewing and tailoring both in their own little houses and at the homes of their customers. In the towns and cities this has become an unorganized work-shop trade in which some workers are employed at wages. These shops also turn out a few cheap ready-made articles which are on sale in the bazaars of the larger towns and cities.

Embroidery and brocade still occupy an important place in Indian dress, especially for the clothing of women and children. In certain castes it is also used by men, especially on turbans. Mohammedan men are also very fond of fancy shirts, vests and similar paraphernalia. Like tailoring, embroidery is still done in the main by local workers to the order of their customers; but there are a few shops in which family members and relatives, together with occasional apprentices and workmen, are employed. In a very few cases a large number of persons are employed in one shop. The 1921 census reports one such establishment with over 400 employees.

A great deal of the work on dress is done on the putting out system in peoples' homes. Women and young girls receive the materials from agents or from original contractors and make up goods to supply that part of the demand which is satisfied through merchants. Closely related to this work and conducted in much the same way, is that of tinsel making. This is still much in demand, both for festal occasions and for ordinary dress. This work is most often done in small independent workshops, though the workers are likely to be in debt to a merchant or merely employed on a piece-rate basis.

Gold plated thread is the more popular and is produced in a variety of interesting ways. Generally a fine German silver wire is passed through a plating solution, then attenuated and flattened. This is done in Europe by machinery but in India the plating, drawing out and flattening processes are all done by hand. Sometimes, a silver rod a foot long is first heated and covered with gold leaf and then drawn by means of a primitive lever process, not unlike a cart wheel, into a very long thin wire, hundreds of yards in length. This is further reduced and given an even diameter by being passed from one spool to another through a series of progressively smaller dies. The wire is then flattened crudely by means of an anvil and hammer, or more quickly and evenly, by two iron rollers. This work is done in all the centers but seems to flourish most in the north and west about Agra and Delhi.

Ropemaking is also a common household or workshop industry. A variety of materials are used of which coir is the most common in the south and jute in the northeast. When this work is done at home, employment is at odd times and in the open air but in Cal-

cutta there are numerous large sheds in which work is carried on regularly. The chief inspector of factories there reports that[14] "the number of children employed is never less than half of the total number, their ages ranging from eight years upwards." Many of these were orphans under the care of a contractor.

Lac. Lac factories, in which deposits left by certain insects on the branches of trees are made into lac, also employs a large number of persons in some districts. Men, women, and children work in large numbers in unregulated shops, often under very unpleasant surroundings. In 1930 in the Central Provinces, 22 factories employed 1988 persons of whom about two thirds were men and a few were children. This is commercial work entirely and, while hours are not long, the conditions are unsanitary and trying. Myriads of insects which have died as they exuded the lac material are crushed and this mass is then soaked in vats. Most of the workers are engaged in washing this material and they are compelled to stand knee-deep in dirty water. As water is often scarce and there are no effective draining arrangements it becomes foul and the entire establishment is pervaded by a most offensive odor.

Another important phase of the work done by men, and sometimes by boys, is in the melting room. It too is unpleasant work because of the heat from hot fires and the lack of ventilation which would interfere with the process. There are several of these factories in the lower Ganges valley but only a few are provided with mechanical power. This means that the stipulations of the Factory Act are not enforced in them.

Carpets. A variety of carpets are made in different parts of the country, sometimes as a mere family industry, but in an increasing proportion of cases as a large-scale and organized work, though without mechanical power. The industry is most common in the northwest and is said to have risen with the decline of the Kashmir shawl industry. People now employed in it or their ancestors were formerly shawl makers. The worst feature of this work is the employment of small children, especially boys, who work in gangs under a man. Payment is by the piece but sometimes the man acts as a sort of contractor, paying the families of the boys a fixed rate and aiming to induce them to produce somewhat more. Usually work is in well-ventilated buildings, but sometimes the presence of

[14] *Royal Commission on Labour in India*, 1931, Evidence, XI, Pt. I, 61.

lint is very obnoxious, especially to young children. In the United Provinces "children of eight years are regular employees." [15]

Handicraft vs. Factory Production. The foregoing list of household and unorganized industries which employ so large a proportion of the industrial workers of India indicates their great social significance. Several of these industries offer little prospect of modernization. So far no machinery can take the place of hand labor in the weaving of silk *sari,* in some of the processes of lac manufacture, and in *bidi* making. Others are conducted on handicraft lines in the main because of the presence of skilled artisans or the demand for certain products, either of an especially high or of an especially low grade. In a few cases, sufficiently similar articles can be produced by both methods and here it would appear that relative expenses of production would be the decisive factor.

It is always very difficult to secure adequate data for costs of production and there are other elements in the problem of a social, religious or political nature. An expert witness [16] claimed before the Indian Tariff Board that the hand-loom could produce cloth for five and one fourth annas per pound as against seven annas per pound on power looms. It seems however that he placed costs low in one case and high in the other. He made no allowance for overhead or capital charges on the hand-loom, allowed twenty yards as the output of a weaver per day, and put his wages at ten annas (22½¢). On the other hand he placed the cost of production, exclusive of yarn, of fifty yards of cloth in a factory at 105 annas, or 7 annas per pound. But in 1929, when expenses of operation had fallen only a little, mills gave their costs of weaving fifty yards of cloth [17] at figures varying from eighteen to seventy-five annas. This is a charge per pound of one and one-fifth to five annas. The cost of weaving fairly ordinary cloth by power is very much less than the cost of weaving it by hand.

The comparative efficiency of hand and power methods of producing shoes is also hard to determine. Hand-made Indian shoes are far inferior to the shoes for which occidental shoe machinery has been adapted. It is possible that some of the best Indian shoe cobblers are able to approach either the machine or the good "custom"

[15] Government of the United Provinces, to Royal Commission on Labour in India, 1931, Evidence, XI, p. 101.

[16] D. M. Amalsad, Textile Expert, The Government of Madras, in *Report of the Indian Tariff Board, Cotton Textile Enquiry,* 1927, III, p. 110.

[17] Pearse, Arno S., *The Cotton Industry of India,* 1929.

work of the United States or Europe; but they are very few. It is practically impossible to produce anything like identical shoes by the different methods. The comparison must be on low grade shoes; the hand worker can make for a wage of about one rupee (36¢)[18] a pair of shoes which it is impossible to make at such a price with modern machinery and Indian labor.

In Manila, a modern shoe factory operated by 180 Filipino workers, of whom about 80 were women, was, in 1928, producing 800 pairs of good average shoes of American style per day. This is over four pairs per person, and I am told that this is fully equal to the output of similar factories in the United States. The manager of a modern shoe factory in India says it is rare that an Indian worker will produce three fourths as much product in a day as a European workman—surely not over half as much as an American shoe worker.

The point then, regarding the relative efficiency of hand and factory labor in Indian shoemaking, is that they do not make comparable shoes. For very low grade shoes such as will probably be worn in India for many years, hand work is the cheaper; but for good shoes, not only is the machine method cheaper, but it is the sole means of production except in the case of a few highly skilled artisans.

The village tanners tan hides in large numbers and at low prices but they produce a very inferior product. It might seem that their business would speedily be taken over by the more expensive but more efficient modern Indian tanneries, and to some extent this is done. Indeed, great quantities of Indian hides, especially of goat skins, are shipped to America and Europe for tanning, and some of these are shipped back to India—paying the fifteen per cent import duty—to be consumed. Yet a great business is still done by the old handicraft tanners. An important reason for this state of affairs is again the variation in quality of raw materials. There are very many low quality hides in India for which proper tanning would hardly pay.

The large number of poor hides results from the low quality of many Indian cattle and goats. An animal which is under-nour-

[18] Shoemakers hawking their product in the streets of Bombay and Calcutta told me in 1927 that the raw material for a pair cost them about two rupees. For these shoes they asked three rupees but would readily cut the price to two and three quarters rupees. A similar state of affairs prevails at Agra and other shoe-manufacturing centers.

ished is not merely reduced "to skin and bones"; its skin also becomes very thin and weak. Again the numerous ticks on the Indian cattle perforate the skins until they appear to have been riddled with buckshot. Moreover, the hides of the many cattle which die of disease or starvation are inferior, especially when, as frequently happens, they are allowed to remain on the carcass until decomposition has begun. A *chamar* tanner can, in his crude way, tan such skins for a rupee or two, but to do anything with them by modern methods would be unprofitable. Like many other Indian handicraftsmen the untouchable tanners remain because of the presence of low-grade raw materials and a market for cheap products. For comparable work they cannot compete with factory tanning.

Certain other industries, such as the making and flattening of gold and silver plated wire, for use in tinsel making, are conducted both as a handicraft and in a small way as a factory industry; but machine-made imports, especially from Germany, France and England, have interfered greatly with the native industry. At least one modern factory has been recently started with French machinery and associates who are training Indian labor to operate the machinery. By 1927 only a few of the workers had attained much skill but the managers were optimistic because of the skill shown by these few. Hand production of tinsel wire seems doomed to fall before factory production within the country.

Controversy has long raged over the advantages of the factory as compared with the older handicrafts. Between the opposing human propensities to idealize the past and justify the present, the subject has been left in a dense fog. A recent American writer, apparently alarmed by the clouds of depression, speaks in glowing terms of Mexico's happiness.[19]

"You have in your possession something precious; something which the Western world has lost and flounders miserably to regain. Hold to it. Exert every ounce of your magnificent inertia to conserve your way of life. You must not move until you can be shown, by the most specific and concrete examples, that industrialism and the machine can provide a safer, happier, more rewarding existence. No such examples now exist anywhere on earth. . . . The United States for the moment has nothing to offer you save its medical and agricultural sciences. . . . Hold to your handicrafts and the philosophy of your handicrafts, and watch them jealously in the face of tourists and ignorant exporters."

[19] Stuart Chase, "Men Without Machines," *The New Republic*, July 15, 1931.

Of economic security, he says:

"Many students believe that the greatest single liability of American life is the lack of this sense. . . . The future hangs like a great black raven over Middletown. In Tepoztlan the sky is clear."

Numerous Indians would fully agree with this appraisal. As for the opposing position, the superiority of the factory system is, in the United States and Western Europe, usually taken for granted. As India has many examples of both systems, she would seem to provide an opportunity to compare them side by side. To some extent this is the case, yet many allowances and corrections are necessary. In fact, neither system now operates normally in India. Improved transport has thrown the handicrafts out of balance by bringing the country within the range of distant competitors; and the factory has not yet been understood or assimilated. It is necessary, therefore, to conjecture what, with further development of modern conditions, might be made of both systems in India. Is it not possible for India to have education, modern sanitation, medicine, and agricultural science along with handicraft? Also is it wholly impossible to legislate as to hours and conditions of work under that system? The handicraft shops have been and remain often dark and unsanitary, yet this does not seem inherent. Early factories in the West and many still in the East are nearly as bad and they add noise, speed, unrelenting operation and dangerous machinery. Hours are long in the workshops; but they were long in the early and still are in many modern factories. Women and children are employed under unfavorable conditions in both types of establishment. In both cases, however, there are offsetting advantages. In the shop there are intimate personal relations and an easier pace. In the factory there are better material conditions, larger productivity, and generally shorter hours; though men in the heavier crafts have always realized that their hours must be shorter too. Many of the abuses and advantages depend upon the people and the times, not upon the system.

The conclusion is that no final answer, applying to all lines of work, can be given. In some lines of production, in which good materials are available and the artistic touch is recognized, as in fine jewelery making, handicraft work was and remains fairly satisfactory. In others, where materials are coarse or dirty and the

work is heavy rather than artistic, as in tanning, the mechanized methods and mass operations are much to be preferred. Furthermore, the results vary with the districts, the employers and the workmen. Those who make the most of their opportunities in Indian handicrafts lead a more desirable life than many who are employed in factories in the United States. But this depends upon personal qualities as well as upon the type of organization. It cannot be said that Indian factory hands as a class are better off than Indian hand-workers. In many cases the former are better off while in others the reverse is true. The chief difference arises from conditions under which the workers have to live. Where factories are in rural areas, the more orderly and more sanitary quarters for working, and sometimes for living, give a distinct advantage to factory labor. This tends to be true of the up-country cotton mill towns, of the suburban jute mill areas, and of the steel town of Jamshedpur. The greater productivity of the machine processes, even with the still low-skilled Indian operators, gives a seemingly clear advantage. In centers like Bombay and the factory areas of Calcutta, on the other hand, the great economic advantage in machine production is offset by the social results of overcrowding. Here every aspect of life, physical, mental and moral, is unfavorable.

Abuses seem to be multiplied when the two systems are brought into competition. This brings a period of maladjustment in which neither system appears at its best. Indeed, there are inherent in handicraft industry certain elements which partake of later factory conditions and break through the old fellowship supposed to rule within the shop. Some bad conditions tend to develop before the actual factory appears. As already mentioned, some of the most unfortunate workers in India are those employed as helpers in the shops which still use essentially handicraft methods. The power for certain small tools or machines is furnished by persons not of the regular trade group. "Even a blind man can do it," they say, and accordingly in not a few cases the blind are employed. In the making of cutlery and brassware, the grinding and polishing machinery is driven by hand and the unskilled men who provide the power put in very long days at exceptionally hard work. Sometimes old women endure awful punishment at similar tasks. But this is in fact the sort of work which develops in the earliest stages of machine or

"factory" production. As in the early factories, untrained workers who belong to no caste or guild are drawn from the outside and employed not under conditions of fellowship but with a keen sense of cost and profit. This becomes more usual when transportation allows the market to be invaded by foreign goods and large-scale operations must be adopted to meet lower competitive prices. There is a clear tendency for the early factories in any country to develop, on a much larger scale, these same abuses which occasionally appear under handicrafts. When the long established customs and personal relations which regulated the former system have broken down, it is only after a long period that substitute controls can be developed.

It is much too early to accept, either with or without private capitalism, the factory system as the highest type of economic organization. But in spite of the present maladjustments, both economic and political, in the western world, the factory tends, like the handicraft, to be adjusted by long experience so as to preserve the most essential human values. Hours and conditions of labor have been improved and standardized so that a day's work is now perhaps no more trying than it was before the factory came. Besides, the output has been so increased that there is a large gain on that score. While it is undoubtedly true that the first factories in nearly all countries bring a definite increase in misery to the workers, that is, as human affairs go, a relatively temporary phase. Even most Indian factories have adopted enough of the British factory code to be far in advance of this early stage of distress; and though only a fraction of the gain which might be appropriated for the higher life has yet been realized in any country, neither India nor the West need look with regret upon the change which the factory system brings.

CHAPTER VI

TRANSITIONAL STAGES IN INDUSTRIAL ORGANIZATION

WESTERN industry, influenced by great changes in commerce, agriculture and transport, has evolved, slowly, from the handicraft organization of the late Middle Ages through a variety of stages to the factory system. In the later stages, a rapid ripening of the cumulative developments occurred—a change so abrupt and striking as to be often called the Industrial Revolution. Oriental industry has been subjected to more sudden and violent changes in some of these respects and is now passing much more quickly from the simpler to the more complex form. This results in the contemporaneous existence of a variety of types of industrial equipment and organization and furnishes suggestive glimpses of many stages of our own economic and social history. In European terms, the fifteenth century and all its successors, as well as some still earlier, are jostling the twentieth in India. The purpose of this chapter is to describe some of these types of organization, evanescent, or sometimes, perhaps, relatively enduring, and to attempt to untangle some of the forces which have caused them to come into existence.

The sequences presented in books based upon European experience apply to what happened there during longer periods and are useful as presenting certain clearly defined stages through which organization passed; but a cross-section of the present transitional period in the Orient would be far more remarkable for its complexity and intermingling of these and innumerable hybrid forms than for its presentation of one clear-cut series of types. The author has not gone into all the by-ways in search of peculiar types of organization and he gives here only those which are commonly met. Others who have followed the subject for a decade or two in India will doubtless know of many interesting cases not mentioned here.

While a great variety of types of business organization exist in India, relatively few are of the very earliest stages as described

by students of primitive organization. There is much primitive material equipment and many primitive social types, but India's population is so congested that specialization of occupations has existed for a very long time. It goes back at least to the origin of the caste system, which lies in hazy antiquity.

As a basis for discussion I shall use the classification of organizational types presented by Professor N.S.B.Gras.[1] For the kind of work most common in India,—some form of specialized handicraft,—this classification is more specific than any other that I have seen; but its clear-cut subdivision cannot provide for the maze of intermingling types met with in India at the present day. Professor Gras's classification is essentially as follows:

I. Usufacture
  (1) The Consumer's Materials
    (*a*) Home product
    (*b*) Outside labor
    (*c*) Outside capital
    (*d*) Outside labor and capital
II. Retail Handicraft
  (1) The Craftsman's Materials
    (*a*) Making to the customer's order
    (*b*) Making for chance sale
III. Wholesale Handicraft
  (1) Independent phase
  (2) Dependent phase
IV. Centralized production
  (1) Central workshop
  (2) Factory

I. *Usufacture.* (1) *The Consumer's Materials.* (*a*) *Home product*

There are many examples of what Professor Gras terms usufacture, but they are nearly all of the later phases in this classification, that is, made with outside capital or labor or both. Indeed nearly all of them come under the last subdivision in which the customer provides his own raw materials to be fabricated by a combination of outside labor and capital. Yet there are examples of the earlier stages, the best from the very low tribes such as many of the

[1] N. S. B. Gras. *Industrial Evolution.* Harvard University Press, 1930.

aboriginal outcasts in Mysore State. Some of these people lead extremely simple existences as near to that of animals as to the life of organized society. Many individuals go practically without clothing and live in the crudest of shelters on the simplest of wild food.

Such backward groups as the semi-nomadic Bhutia shepherds produce their own clothing by primitive means from their own wool. While tending his flock the herdsman spins by means of a whirling little iron weight and the undyed yarn is later woven on a crude loom made of poles, by the members of his family. But this self-sufficing economy is not typical of India. Such economy as characterized the backwoods settlements in the American colonies remains only in a few mountain fastnesses. Every family depends much upon the exchange of its products and services for the products and services of others. Even in the poorest village, the housewife does not launder the family clothing but turns it over to a professional washerman. Likewise the tonsorial artistry is furnished by the present representative of a long line of barbers who served the family ancestors. Caste prescribes the work of each individual much as the craft guilds of medieval Europe and of China prescribed it, but the prescription is more strongly reinforced by social custom and religion. The carpenter is held to his trade not only by the caste rules, but because his entire economic, social and religious life centers in the group; and were he to disobey any of its rules, the result would be not merely the application of economic sanctions but the social ostracism and religious excommunication of himself and his family.

Nevertheless, even in the village families there is some production for home use—usufacture. The most important piece of household equipment, the small clay stove, is made by the housewife herself. Spinning of the family cotton into yarn was long done mainly in the family. Until very recently, hand-grinding of grain at home was all but universal and is still practised in the villages.

(b) Outside labor

There is considerable production by outside laborers who are set apart by caste rules for that particular work, but who are not highly specialized. Fuel, of cow-dung cakes, is made up from the family cattle pens, generally by hired lower caste women. The cattle and goats of the family are often let out to a herdsman, and

other outside persons are called in to help with the farming. Some aid in plowing; others prepare the shallow ditches for irrigation; and still others, often from the artisan groups, work in the fields at harvest time. Wages are sometimes in cash, for harvesters sometimes a certain proportion of the amount they harvest, and frequently some privilege, such as the right to glean the fields.

(*c*) *Outside capital*

It is much less common to take household materials out to be worked up on someone else's capital. One instance is in the making of *gur,* or crude brown sugar. This is often done on a coöperative basis,[2] the community owning a crushing mill and a great iron kettle for boiling, as well as certain wooden chambers in which the material goes through the necessary settling stages. Occasionally, persons who do not belong to the coöperative group have their material ground and boiled on a toll basis.

(*d*) *Outside labor and capital*

Working up of the family's raw material by an outsider with his own capital, the fourth stage of usufacture, is very common in India. Nevertheless, it is often difficult to distinguish sharply between the hiring of outside labor in this stage, and the first type of retail handicraft.

Several Indian craftsmen bring their own "capital" equipment to their customers; for instance, the barber brings his soap, brush, scissors, razors, etc., and shingles and shaves the male members of the family. His wife performs similar services for the women, including the care of their feet, which, being bare and bejewelled, require special attention.[3] Besides going to his dwelling, the barber often appears at the customer's place of employment as does the bootblack in some American offices. In Bombay they were long accustomed to go inside the cotton mills and shave or shingle the machine-tender at his work. The barber is often found as a mere wandering craftsman. Every considerable railway station is likely to have a barber who roams about the platforms shaving customers. In urban centers, the massing of many customers, strangers and

[2] So elaborate are the customs in this connection that a workman who happens in is allowed to drink a certain number of cups of cane juice.

[3] Since these two have unusual opportunities for observing and knowing the various members of different families, they are also the village matchmakers. For this last service they receive a large share of their income, albeit the trade involves heavy responsibilities.

temporary residents has tended to cause barbers and others, who formerly went to their customers, to locate in shops according to the European manner. It is hard to say what is the most typical locus of a barber in Bombay, Cawnpore or Calcutta; he is found as a wandering craftsman, he sits by the roadside or he is established in a shop. The lower and the higher grades of custom are still carried on by the roadside and at the customer's residence respectively. When calling on customers, the barber carries only a small kit, but on the roadside he generally has equipment which borders upon "fixtures." The upper part of a lady's cast-off dresser, with a small drawer or two and a tilting mirror before which artist and customer crouch in splendor is a great builder of business.

The *dhobi* or washerman possesses no capital beyond a miserable donkey and a rock in the river,[4] on which to beat the clothing, but his work is an example of both outside labor and outside capital employed on family materials, given out to be worked up. Also, oil-bearing seeds are taken to the village oil presser. After the oil is extracted, as already described, the presser commonly takes his pay in both oil and oil-cake. The making up of textiles also comes under this head. Under the old system the village family sends out its raw cotton or raw wool to the village carder who cleans it and makes it "fluffy" by means of a giant bow-string, vibrating in response to jerkings by the operator. This is a regular occupation and is paid for by a toll, in grain or, sometimes now, in cash. Until the great development of the mills, spinning was done by hand, sometimes at home, but often was put out to widows with their wheels. For the final and most important work of preparing and weaving, the yarn is sent to a number of specialists each with his own tools. If dyeing or printing is required, this too is done, generally with dyes and always with other equipment furnished by the craftsman.

Other of the village craftsmen or menials, for instance the carpenter and the smith, are sometimes also in this group. The consumer often brings a log from the forest to the carpenter, to be made into a yoke, a plow or a bed. The goldsmith makes up the customer's metal into jewels and the shoemaker may work up a special

[4] The *dhobi's* donkey is the proverbial example of something which is neither one thing nor another. He is "neither here nor there" but is always on the road either to the river or from it. Mark Twain is famous in India for the remark that he had never before "seen anyone pound rock with a shirt."

bit of leather secured from the outside by the customer. The *dersey*, or tailor, furnishes another instance. There are many tailors, especially for the Mohammedan population, and with the changes in fashions they are becoming more important. The urban tailor often carries his sewing machine on his head and may spend several days at the house of his employer. Yet he also works in a great variety of ways which we shall mention later. In small urban communities, grain is often taken to a small "mill" generally driven by a kerosene engine, where payment is by toll or by cash. Crowds of women wait long for their turn—suggesting that it would save time to grind the corn by hand at home.[5]

It is interesting to observe the degree of efficiency which this old order attains. The raw materials are usually at hand; there is no transportation charge for them or for the finished product. There is cheap labor, which has fallen heir to much of the acquired skill and tradition. The customer and laborer are well acquainted—indeed, their families have been interdependent for generations—there is little chance of deceit as to either materials or workmanship and there are no middlemen's profits to be added to the original cost. Where producers' goods are few and simple, like the craftsman's tools and the farmer's plow and yoke, and where consumers are not exacting, since their principal desideratum is reliability rather than fashion, these local craftsmen do excellent work at remarkably low costs. It is when production is for sale, perhaps to a stranger, that the temptation to skimp the work or use poor materials arises.

Only when cheap connections were made with the outside world did the system fail to function. Railways and ships carried cheaper factory-made goods to India, and took the grains and fibres away. The European factory owners displaced the craftsmen and drained away the raw materials and foods upon which they had formerly depended for support.

II. *Retail Handicraft.*

(1) *The Craftsman's Materials.*

(*a*) *Making to the customer's order*

Usufacture passes imperceptibly to the second stage, retail handicraft, in which the worker passes from a mere wage-earner to an

[5] Most Indians object to mill-ground meal because they think that the steel cutters give less wholesome flour than simple old stones. This idea is perhaps religious in origin.

entrepreneur who may hope for profits. Indeed it is impossible to make a rigid classification of the business of many of these persons. It is a question whether the village artisans are wage workers, craftsmen making up their own materials to order, or merchants exchanging certain products for others. Some of the raw materials, such as the clay of the potter, cost nothing, while the wood of the carpenter and the skins of the leather worker are communal products which custom requires certain persons to make up for the good of others in return for customary rewards. It is impossible to decide whether this is usufacture or retail handicraft.

This stage divides into two parts, one the making of goods to order from the craftsman's material, and another, the making for chance sale, either outside or inside the shop. The order phase comes logically and historically first. Some business of this kind has long been carried on by those who worked according to custom chiefly for others. The goldsmiths made up goods to order, as did the carpenters, blacksmiths, and potters.

The carpenters make up plows or wagons to customers' orders, while the blacksmiths make new equipment or improve old, using their own raw material. In the Punjab [6] "the blacksmith and the carpenter now do only repairs in return for the grain they get at harvest, and they charge through the nose for anything they sell." They are thus moving towards the position of independent business men. The village potter furnishes a complete supply of pots of various kinds—nearly all the village receptacles, from lamps to dishes and water and milk jars—and receives his proportion of the threshed grain, a stipulated amount of grain, or the use of a piece of land, according to the customs of the village. Here he seems much like a laborer, but he does have a little "capital" in his donkey, his potters' wheel in its shed and his "kiln", a hole in the ground. He also makes up special "orders" for his customers upon occasions such as festivals and weddings, for which he receives extra payment in some form or other. Under the old régime the untouchable *chamars* received the flesh of dead animals for food and the skins for making up into shoes for the families of their village masters. As skins have become an important article of commerce, some villagers prefer to sell them and buy their leather goods with

[6] M. L. Darling, *Rusticus Loquitur*, Oxford University Press, 1930, p. 65.

cash. Hence most *chamars* have given up eating the flesh of animals which have died and have taken to buying leather rather than tanning it. In some regions, they have started charging for shoes, though they sometimes still get the skins for nothing.[7] Thus the *chamar's* work comes more and more to be custom, "bespoke," work, yet it is mixed with both the old type and with production for sale to merchants.

There is much custom work in the fine clothing trade, the workman nearly always furnishing the materials. Gold brocaded caps and coats for children, turbans for men and *sari* for women are largely produced to order. Thus the work of the tailor reaches a second stage and we shall see later that it reaches still others.

(b) Making for chance sale

The making of goods to order passes almost imperceptibly into making for chance or sought after retail sale. Even village craftsmen utilize spare time in making goods for sale in local markets or for peddling by themselves or their families. Carpenters make wagons, yokes or plows; blacksmiths make agricultural tools or household utensils, such as knives. Both village and town shoemakers make extra shoes which they peddle about or sell to any chance purchaser. A typical little business in Moradabad is that of a former cook to a military officer who hires three men to make shoes in standard sizes and styles while he himself takes general charge of the business and peddles the wares among more or less steady customers. The Chinese shoe-makers in Calcutta combine making for retail with making to order and more extensive making for the next stage,—sale to merchants.[8] Other kinds of leather goods, such as purses, bags, suitcases, harness and saddles, are made and sold at retail in the same shops or in similar specialized shops. Furniture for sale to both Europeans and Indians is thus made and held for retail in the larger cities. Household hardware, such as galvanized buckets, pans and tubs, are also coming into use and are generally sold after being made up by small craftsmen in their

[7] *Ibid.*, p. 135.

[8] In Japan, where all these movements preceded by a few decades their coming in India, this has been a common type of business, although it was conducted along with the retailing of other goods made elsewhere.

shops. Vehicles, such as the Indian *ekka* and *tonga*, both two-wheeled carts, though commonly made to order, are now often made up one at a time and held for sale, as are wagons and tools for farmers.

This type of manufacture is also frequent in the tailoring trade. Men who still go to customers' houses for wage work take work on order—both with the customers' and with their own materials—and make extras for chance sale. Sometimes they hire workers, put in sewing machines and build up small factories, as well as doing considerable retail business in standardized ready-made clothing.

Not only does this sale at retail grow up from the earlier stages, it remains as a vestige after the individual has gone over mainly to wholesale business. Agra is full of small shoe shops, making shoes for sale in the market to buyers at wholesale; but both in their shops and on the streets these men do their best to make retail sales. The same is true of the weavers everywhere and of the *durrie* (floor covering) makers. Both they and many of their customers are anxious thus to "eliminate the middleman" and his profits. Even most of the great cotton mills offer cloth by the amount required for a single garment or by the carload.

Closely related to this situation is the transition from manufacturing to merchandising taking place in oriental cities, within the past few years. Many craftsmen, especially those who happened to be located in places which have become good retailing sites, are being compelled to specialize in merchandising. Some have continued to manufacture most or all of the goods they sell, but others have abandoned manufacturing entirely. The typical shop combines work and sale, but some have become flourishing retail stores.[9] Others less favorably located for, or less inclined to, retail trade specialize in manufacturing. Not only have retail stores displaced the small order-taking retail craftsmen's shops but frequently on the same site within a decade or two have risen large department stores. Even these retain vestiges of the earlier type and often operate, as does the largest one in Japan, very elaborate workshops for making up the goods which they offer for sale.

[9] In Tokyo after the earthquake and fire of 1923, hundreds of craftsmen, shoemakers, cloth sock makers, seal carvers, umbrella and cane makers, coopers, silversmiths, tailors, etc., whose retail business had been expanding, "blossomed" out with sizable stores and had their work done elsewhere, often with some machinery.

III. *Wholesale Handicraft*

We now reach the third main stage, the one which, with the fourth, is tending under modern conditions to overshadow the two earlier stages. This is wholesale handicraft or production of goods to be sold, not to the consumer, but through a merchant. Theoretically, this might be divided into two main phases, the independent, and the dependent, that is the worker might be independent, or he might depend upon a capitalist entrepreneur. In India and perhaps everywhere, this distinction is exceedingly difficult to draw because dependence appears in such a variety of ways. It is not merely a matter of wage-payment, for besides this there is every degree of dependence from the slightest tie of custom or the stronger pressure of a narrow local market, to absolute dependence for tools, raw materials, housing, food.

Producers for wholesale trade who are at the same time independent are rarely found in India. Such persons exist in almost every community but they constitute a small minority of the workers. In all the great handicraft centers, such as Agra for shoes, the presence of a large market to which wholesale buyers come in considerable numbers makes it possible for an independent worker to dispose of his own product to fair advantage; and energetic men who have accumulated sufficient capital to provide their own raw materials and tools, as well as their living expenses, are thus found in all such places. But almost everyone is in some way dependent upon a merchant-capitalist. In Bangalore, it is claimed, only 10 per cent of the 4000 looms are tended by weavers who are able to buy and sell where they please.[10] In Surat, the weaving expert calculates that only 425 out of a total of 21,000 weavers—that is, about 2 per cent—are wholly independent. Even of the 425, a very large number—some estimate it at 80 per cent—prefer working at piece-rates for a merchant, thus relieving themselves of the trouble of selecting patterns, buying materials, and selling the product. In great centers of hand-loom weaving like Madras, Salem, Trichnopoly and Madura, where goods are now being made up for great markets, the merchant nearly always intervenes. The "handker-

[10] "All these weavers are in the hands of *sowcars* who make advances to them and get cloths in return." *Report on the Famine in Madras Presidency*, 1896–97, cited by Thurston in *Monograph on the Silk Fabric Industry of Madras Presidency*, 1899, p. 5.

chief" business of Madras, which ships out for consumption in Africa bandanas to the amount of about $1,000,000 per annum, as well as $6,000,000 worth of plaid loin cloth,[11] is all controlled by merchants who first give their orders to large jobbers who in turn pass them on to subcontractors. Some of these subcontractors buy goods made independently by weavers; but this is the exception. Generally the subcontractor either gives out raw materials or is in some way able to exercise compulsion over the worker.

When the trade becomes "wholesale" it is only those workers who are located in a large and active market who can easily sell. The following extracts from reports on hand-loom weaving in Madras and Bengal in 1923 and 1924, respectively, are typical of conditions in the less urbanized areas.

> In almost every weaving center where the weavers live only by weaving throughout the year, the output of hand-loom fabrics becomes far in excess of what can be disposed of in local *shandies* (markets) and the unhappy weaver is often seen trudging with his goods from one village *shandy* to another till at last, tired of hawking and wasting his time, he parts with his burden to the village *sowcar* (money lending merchant) at a considerable reduction in the cost of his labor in order to provide food for his family. In towns situated on or within easy reach of railway communication, he does not find any large or immediate sale of his fabrics, owing to the slackness of the season added to the competition of power-woven cloths.[12]
>
> The weavers lose considerable time in disposing of their produce, as they have to attend *hats* (markets) every week for the purpose.[13]

Craftsmen have sometimes been left stranded by an economic ebb tide in an isolated neighborhood where they cannot readily dispose of their own goods. Particularly, in some villages lying outside Bangalore the weavers are wholly under the control of local merchants. Weavers in the Arcot section were in 1927 bewailing the fact that they must spend their time tramping to local markets because there was no wholesale merchant.

Thus when trade becomes wholesale, the tendency is for the worker who is in a position of implicit dependence upon someone else to market his goods, to fall into explicit dependence. Not

[11] See *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, III, p. 112. These are rough figures for the years 1922–23 and 1923–24.

[12] *Hand-loom Weaving in the Madras Presidency*, 1925, by D. M. Amalsad, Textile expert to the Government of Madras, p. 37.

[13] *Report on the Survey of Cottage Industries in Bengal*, 1924, p. 98.

only does the merchant provide necessary knowledge as to where the markets are, as to what particular goods are in demand and just when they should be delivered, but he is also a specialist in knowing to whom credit may safely be granted, and in the collection of the accounts. The craftsman, of course, has no connections in the larger market and could not make a sale there if he chose. His only opportunity is to sell to the merchants in the local market who, in turn, carry out the distant marketing. Such high-class goods as the brocades of Benares and Surat also require specialized salesmanship which the weaver does not possess.

This kind of trade also demands more capital than the craftsman possesses. Local sale requires that money be tied up in raw materials for only the time of actual manufacturing, and permits the worker to receive the reward for his labor a few days after it is performed. Distant, wholesale business takes time and therefore neither the price of the raw materials nor the wages of the workers can be gotten from the final consumers until several weeks or months have elapsed. It is only men of considerable capital, which they wish to employ for the earning of interest, who can handle this business. The amassed wealth of the merchant, together with his training as a marketer, thus supplement the labor of the worker and make it effective.

Even though the worker have sufficient capital to produce on his own account and even though he be located at a good market to which many merchants come to buy, he is in a weak position. His output is so small that the merchant can afford merely to ignore any particular individual. That means that the worker may sometimes fail to sell his goods. The merchant's business varies from time to time and he is always anxious to have such relations as will give him a priority right to the product when he requires it. Hence he favors the men who will work in close relation to himself.

The workman, furthermore, must depend upon someone for knowledge of just what to produce and when. His small business hardly warrants his expenditure on these items, even if there were a reliable source of information. The most reliable source for this information is the capitalist who is at the same time a specialist in the trade and who is risking his capital in it.

The worker is also commonly too poor to bear the financial burden alone. Raw materials, tools, housing, must be provided by

someone and the most likely person is the man of wealth actually engaged in the business. In India, moreover, the craftsman needs even the means of subsistence. Poverty has become so traditional with the Indian lower classes that they think nothing of borrowing for the commonest daily needs as well as for relatively elaborate expenditures on such affairs as weddings and funerals.

Like occasional earlier conditions in Europe, though the worker is nearly always *dependent* upon a capitalist he is in many cases *technically independent*. The dependent phase is commonly considered to be that in which the worker is employed at wages on materials furnished by the capitalist—the "putting out system." But this system must be understood as implying other forms of dependence, such as those transitional forms which are substantially equal to entrusting the worker with goods. It is common in India for the merchant to agree to *buy* the product of the worker under condition that the product can be sold to no one else. This is enforced by a species of debt-slavery whereby the price is subtracted from the amount of a loan which the capitalist has made in advance to the worker. With this loan the worker may provide his tools and raw materials, even his housing, as well as his living expenses during the manufacturing process.[14]

A number of businesses are conducted in India by groups of handicraftsmen dependent upon a wealthier merchant. The rug business, which flourishes especially at various places in the United Provinces and the Punjab, is largely handled in this way. At Mirzapur two capitalist firms "employ" several thousand families by giving them cash advances in return for an agreement to sell none of their product to anyone else. The families buy their own raw wool, spin, dye and convert it into pile carpets all in their own homes. The capitalist merchant provides the designs but depends upon the weavers to secure sufficient standardization (best if there are variations) of colors and weaving. Brass industries and cloth weaving are the principal other industries so conducted in India and, with the

[14] Until 1925 this debt-slavery was clinched by legal provisions which required a man either to work for the account of the person who had advanced him wages or go to jail. In 1925, at the instance of labor leaders, the Act allowing this, passed in 1859, was finally repealed (Act III of 1925). Yet, as an example of the way in which ancient custom rules, a carpet manufacturer in Amritsar stated, in the spring of 1927, that he had that day had a workman, who had disappeared without paying back his advance in wages, thrown into jail, "partially as an example to the rest of them." The magistrate of that district was probably a fair ruler but too busy to keep abreast of the work of the legislature.

exception of central dyeing of yarn, the same methods are common to them.

This system, which may be called the "finance and order" system, has certain advantages over the putting out system, in the narrower sense, for both worker and employer. The worker remains technically independent and if there should be, perchance, a favorable turn in conditions, he might become able to finance himself. The status of a wage-worker is lower than that of an independent artisan, and a family may hang to this ghost of independence for decades, even generations, hoping for a favorable turn. The status of the family, so pivotal in Indian life, counts in the marriage market and in numerous other ways. The merchant, on the other hand, gains by holding a steady supply of hands, since a workman who is indebted is not allowed to forsake his creditor without paying off the debt. The merchant also gains by making superintendence of the work much less onerous, since he places upon the worker the responsibility of maintaining standards and of saving the raw materials. Debt control is indeed one of the most effective instruments for organizing cottage industry in a modern world market. A dealer must be able to guarantee the delivery of goods of certain standard at definite dates, often several months in the future. It is always difficult to get hand-made goods standardized,[15] and the most effective way of meeting the difficulties of future delivery and maintenance of quality is so far as possible to have the same men continuously at call and under pressure both to finish the product and to maintain its standard.

Sometimes the advance is a loan with reference to a particular order of goods, but commonly it is a general advance of a considerable sum, without interest, allowing the worker freedom to buy raw materials and pay his own or his journeymen's wages. In the

[15] "The carpet-manufacturers of Amritsar would do well to standardize their colors. At present there is a great loss of custom because orders cannot be repeated, there being no guarantee that the customer will get what he wants. In 1906 £4,000 worth of carpets were returned from London, because they did not come up to a sample as to their color. This was not only an actual, but a still greater prospective loss to the industry generally." A. Latifi, *The Industrial Punjab*, 1911, p. 61.

The hand manufacture of pearl buttons in Bengal has similar difficulties. "The buttons as manufactured by the cottage workers are not of uniform shape, size and thickness nor are the holes in the buttons equidistant from each other. . . . Sometimes . . . [the dealers] . . . do not get buttons exactly like the sample ones supplied by their customers. The result of this is that the customers get annoyed with their order suppliers, who subsequently change the names of their firms, and by substituting new names secure fresh business." (Report on *The Survey of Cottage Industries in Bengal*, 1924, p. 53.)

typical case the worker "signs" a note with his finger-print, agreeing to pay in goods. At no point in modern industry does the function of the capitalist so nearly approximate what it was called by the English classical economists—the "making of advances to laborers." Surveys of cottage industries over the entire country, from Madras to Bengal, and from Bengal to the Punjab, reveal that this is the prevailing system in all the hand trades.

The type of dependence upon a merchant capitalist which plays a larger part in the books on European Economic History—that is, the "putting out" system in its strict sense, in which the craftsman works in his own home at piece-rates on materials "put out" by and belonging to the merchant capitalist—also exists in nearly all the trades in India. But, as already stated, it is not so prevalent as the "finance and order" form, though it is more common in certain trades than in others. Those types of work that are easily skimped or in which poorer raw materials may be substituted for better are least adapted for this type of work. In weaving it is difficult to detect when a certain amount of a poorer yarn has been inserted, yet a very great amount of textile work is performed by wage-workers, including the preparation of yarn, pirn winding, warping, healding, weaving, and finally dyeing and finishing. In Madura and elsewhere an interesting work done by women and girls at home at so much per thousand knots is the tying of knots in patterns before dyeing so as to produce peculiar spotted designs.

The brass and bell-metal industries are well adapted to the putting out system. Brass vessels must be returned weight for weight of raw materials, and wages are paid at so much per *seer* (about two pounds) for each particular kind of product.

There is practically no difference in final analysis between these two sorts of dependence, though the workers and the general public do rate the "finance and order system" as somewhat higher than the wage system. The worker who is bound to buy his raw materials from a given person and to sell him in turn his finished product is not a free bargainer; and the amount which will be left to him for his labor is largely in the hands of the merchant and is as nearly fixed as is the wage of the man under the putting out system.

The merchant capitalist who supports the worker is the same in both cases, and both types of business are conducted by the cash advance system. Even when employed on the *bani* system the

worker receives an advance. This serves as a firm anchor since he cannot work for any other person without the consent of the advancing capitalist until the debt is paid. The worker is really dependent in nearly all cases.

The capitalist is known by different names in different districts but is generally called either a *mahajan* or a *sowcar,* the latter term suggesting the lending function. In Gujerat he is generally called a *seth.* In the great weaving center of Madura, as well as at numerous other places, the weaving caste takes over this capitalist function. Indeed in the main weaving centers the principal merchant capitalists are from the weavers' caste itself. Men who are brought up in a trade are likely to know it best and the caste system is sufficiently elastic to allow them to rise.

The men who provide capital for India's craftsmen are supposed to earn handsome interest on their capital; and those who succeed undoubtedly do so. But there are grave risks and, through the disappearance or death of the worker, many debts remain unpaid. It is common to malign the *mahajan* or *sowcar* but to the poorer workers he furnishes funds at better terms than anyone else. This is indicated in the following reports from Bengal.

Several attempts were made to arrange for the supply of yarn to the Titalya weavers' coöperative society but it was found that yarn could not be supplied at a cheaper rate than that of the local mahajans.[16]

Such industries are at present financed by *mahajans* depending upon the good faith of the borrowers. Let the case be made quite clear by an example. An industrialist requires a sum of Rs. 400 to carry on his business independently and owes a sum of Rs. 250 to the *mahajan* and the value of all his property is only Rs. 100. No bank, whether coöperative or private, under the present circumstances will finance such an industrialist. This is the position in which the majority of workers in the brass and bell-metal, silk reeling and silk weaving industries stand.[17]

IV. *Centralized Production.*

(1) *Central workshop*

The next stage in industrial management is when production is in some degree centralized. India shows two main types of this stage, both intermediate between the earlier types already discussed

[16] Report on *The Survey of Cottage Industries in Bengal,* 1924, p. 99.

[17] *Ibid.,* p. 94. The money lenders also perform a great service to agriculture, cruel as their methods often seem. See Darling, *The Punjab Peasant in Prosperity and in Debt,* pp. 201–202.

and the complete factory system. One is that in which craftsmen are brought together in a central shop, though they are not employed upon power machinery nor is their labor subdivided. An example is a case in which a number of hand-loom weavers are brought together in one shop, and though they all may be employed by one capitalist, each operates his loom as an individual. Early economic life showed numerous examples of this in Europe but it never became typical, apparently because it is only when there is power machinery that the advantages of the division of labor become sufficiently great to offset the opposition which the workers make to this aggregation and the expenses which the employer incurs to secure superintendence.

Although this type of organization has had nothing like the survival value possessed by the forms which have been distinguished as the "putting out" and the "finance and order" systems it appears in all the oriental countries. In India it is very closely related to the earlier dependent forms already discussed and in principle differs scarcely at all from them. It is especially noticeable in weaving, in carpet making, in lock manufacture and in brass and bell metal work. It appears to arise out of the merchant's desire to meet the demand of a larger market and to secure the advantages of supervision over both quality of product and time of delivery. There are varying types of organization applied to craftsmen producing in this centralized manner. Since they are working in a single building which generally belongs to an outside person and since such a building for want of a better name is called a "factory," it is likely to be thought that the "factory system" is applied here. But this is not necessarily the case. Indeed, in India, there are frequently two or three intermediate types of organization.

The most conspicuous example of unsuperintended labor in a capitalist's building is in the small metal wares' industry centering especially at Aligarh, United Provinces. The essential feature of this organization is that though one or two hundred men work in a large "factory" the work is still "put out" to individuals who are just like the heads of household shops. They bring their own sons, or relatives and work independently of the others and of the management. Even the moulder is commonly only a contractor who brings in his own equipment and helper and works at piece-rates. The men bring in the tools and in some cases the benches on which

they work. The business shows none of the essential features of the factory system. There is no supervision or direction of work, no regulation of hours, no time wages, no assumption of the technical risks of manufacture by the employer, no division or organization of labor, no mechanical power and no machinery.

In another lock-making concern a further advance is made when the capitalist undertakes to provide something like permanent employment, thereby keeping on hand a supply of finished or nearly finished goods, assuring the performance of some of the more important parts of the work under his own immediate control,[18] and enforcing something like regular hours. Even here the work is still let out to the heads of small groups, and the employer has no direct relationship with the ordinary workman. In this concern I found 70 men of whom 14 were independent takers of work, employing the others.[19] The higher degree of organization is the result of producing locks considerably above the average quality, almost all of which are sold to meet the fairly steady demand of the government. The supervision, however, does not go beyond a rather more elaborate inspection of the materials both before and after the lock is closed. Also moulding is done, not by an independent craftsman, but by an employee, paid by the month by the capitalist and also working in the capitalist's building. The bow is also rough-forged under similar conditions. But as if reverting to the independent craftsman type, the contractors in this shop are permitted to buy rough-finished keys wherever they choose and then complete them. The final responsibility is still placed upon the contractor. If a lock is not up to the requirements of the inspector, the contractor is not paid but is charged a certain amount for moulding.

In the saddlery and harness factories in Cawnpore, where practically hand-made horse equipment is produced, this same system has long been employed, each small contractor hiring and furnishing his own helpers and being paid at piece-rates for the total output. A similar contract system is used in many engineering works throughout the country.

In many hand-loom weaving concerns, the organization approaches still nearer to the factory system. While the workers are

[18] One danger to be guarded against is that instead of three or four levers inside the lock there may be only one, but with the proper number of slits filed in the brass to make it appear that the levers are actually there.

[19] Generally they are relatives.

usually employed on looms belonging to a merchant rather than to themselves, they may work on either the "finance and order" system or on the "putting out" system. In neither case is their work completely under the supervision of the capitalist. While some pressure is brought to bear to secure quality of product and regularity of production, it is not necessarily more marked than when the supervisors of the master visit the homes of workers on one of the other systems. Workers generally select their own hours as they do at home, though it is likely that the actual hours spent can be better ascertained. Quality will also be under closer scrutiny, since the master's eye, or the eye of his manager, can always be on the work.

In some places, especially in the northwest and in the southwest,[20] "factories" of a more transitional sort are rather plentiful. Here a master collects a number of looms, often up to fifty, and hires workers to operate them on a wage basis. The most successful system is still to pay by piece-rates, thus leaving the worker largely his own superintendent. But this is not always done and in numerous cases the weavers work at daily rates. It must be said, however, that in these "factories" they regulate their output so much according to the wages which they receive that the wages become in effect piece-rates.

In the manufacture of coir matting on hand-looms in Travancore the situation is essentially the same, except that less leeway is allowed as to hours; some larger concerns insist on regularity of hours and attendance. Hours become more regular and supervision more evident in the Surat silk factories operating with expensive foot-power looms.[21] Here the amount of capital is greater, since this loom costs about twenty times as much as a good fly-shuttle loom; and the larger volume and value of raw materials and of production reinforce the need for more business-like management.

There is more division of labor in shoe factories where many more tasks are performed in succession than in most other simple factories. The following is a list of tasks and prices paid in Agra:

[20] Along the Malabar coast this development is due to the influence of the Basle (German) Mission which flourished there prior to the World War.

[21] These are steel "power" looms but fitted to operate by the power of men's legs. They were introduced into Surat about 1910, and with the World War demand, the coming of artificial silk and the slight change towards simpler weaves, they have had a considerable vogue. In 1927 it was estimated that over half the looms in that city were of this type.

1.	Cutting uppers and linings	6 as. to 9 as. per doz. pairs
2.	Closing the uppers	2 as. to 6 as. per pair
3.	Lasting	2 as. to 5 as. per pair
4.	Stitching	2 as. to 4 as. per pair
5.	Heeling	¾ as. to 1¼ as. per pair
6.	Bottom stuffing	8 as. to 12 as. per doz. pairs
7.	Sole, toe box, counter and heel cutting	9 as. per dozen pairs
8.	Heel building	2 as. to 7 as. per doz. pairs
9.	Finishing	2 as. to 4 as. per pair

Even in Agra such factories furnish much the smaller share of the shoes sold in the city. Hours are very loosely regulated and the factories contain only a little more machinery than is now employed in an American cobbler's shop. Even this machinery is generally run by hand though occasionally by a small internal combustion engine or by electricity.

Some of the larger oriental carpet factories making hand-made products go further in regulation of hours than either shoe or hand-loom weaving factories and demand that all workers start and stop together. I found them working 10 hours in some and 12 hours in others, partly because work is by the group system and it is desirable that the work shall advance at a uniform rate across the face of the carpet.

The second type of central workshop illustrates a different method of introducing the factory system. In it only one or a few of the processes are brought into the employer's place of business and carried out under his immediate control and supervision. This occurs for a variety of reasons. It may be that a machine is available for one part of the work, that a task is of special importance in the salability of the product, that proper workmanship is very difficult to secure without direct supervision, or the employer may himself be a specialist in some branch of the work and wish to keep that in his own hands.

In the weaving business various employers do their own dyeing because this is an important task for which a goodly number of employers are specially prepared by training and equipment. Because of the importance of warping, some producers do that work under their own supervision. As already mentioned, the more efficient and expensive foot-power looms used at Surat are commonly operated in the employer's shop where they and their more valuable raw material, silk or rayon, can be always in the employer's sight.

The better the raw material used the more likely it is that weaving, or any other process, will be carried out under the owner's supervision. In Surat I found the upper rooms of one big house being opened up for the reception of weavers because the master had decided to abandon rayon and return to silk in which he had originally worked.

In a very large organization manufacturing fine carpets for export to Europe and America, power spinning and dyeing of yarn and finishing of carpets are all done in the central shop. This admits of the use of the spinning machinery which gives cheaper and more even yarn and of a higher degree of skill in both dyeing and finishing than can be secured in scattered workshops. As it is easy to check the number of threads per square inch and the length of the pile, carpet weaving may then be continued at piece rates in the little home workshops.

In brass manufacture, the designing and finishing are commonly done in the central shop, apparently in most cases because of their importance in the sale of the articles, but in some places because good designers earn more money than other brass workers, and are hence owners of a disproportionate share of the small factories. In scissors manufacture, it is the later stages—grinding and nickeling—which need to be done most carefully.

If the master finds it profitable, the succeeding steps may be brought, generally by degrees, into the central shop. This has usually depended upon the invention of machines to perform the remaining processes; but even without new inventions it is likely to happen merely because the masters and men have become more familar with the centralized methods. The factory system, with its more exacting and efficient methods, tends to spread both to new branches of the fields in which it has already been introduced and to entirely new fields.

(2) *The factory*

The most recent stage in the evolution is that of the factory. We are not here concerned with the great factories such as are typical of the cotton and jute industries, most of which have been set up on patterns already developed in Europe, rather than evolved out of Indian conditions. They have required expenditures of capital much too great for craftsmen or for individual merchants. Un-

doubtedly this is a point at which the conditions under which the factory in coming to India differ from those under which it came to Europe and America. Factories of this modern period were so large, involving so much capital and such elaborate technique, that they could be introduced only by capitalists with the importation of highly specialized skill to aid in operation. In so far as such factories have come to India, they represent an importation rather than an evolution.

In the Occident the factory evolved mainly in two ways. First, the craftsman gradually enlarged and organized the force in his workshop until it became a complete factory. Second, a capitalist built up a factory by bringing some tasks into his own central shop which then gradually expanded until it contained the entire process.

In only a few lines of production and in comparatively few instances has the Indian craftsman been able to turn his shop into a factory. The difficulties vary greatly in different lines of production, but generally more capital is required than a craftsman possesses. Yet the greatest deterrent has been lack of ambition and aggressiveness. Their physical and mental habits are at the opposite pole from those of the pushing young workmen of countries where the economic and social fabric has been loose enough to admit freedom. All the ordinary craftsmen have been looked down upon by the upper classes, whether Hindu or Mohammedan. The awkwardness of the weavers has been proverbial and they have been a most unprogressive community. Workers in leather, such as shoemakers who dared to handle the skin of the sacred cow, even though she may have died naturally, are low caste Hindus (the "untouchable" *chamars*) or Mohammedans of no standing, neither of whom has any thought of business success.

Where success has been attained, conditions have been somewhat peculiar. The most conspicuous instances of which I have knowledge are those of certain manufacturers of European shoes in Agra. One of the first machine-equipped shoe factories in India was set up here by a Kashmiri *pundit* (scholar) in the nineties.[22] Agra has been in close touch with European influence at Cawnpore and at least one of the most conspicuously successful master-

[22] This was called the "Stewart Factory," probably because a European name on the outside of a shoe-box makes the sale of its contents easier.

craftsmen in Agra spent several years as a foreman in a big European-owned and operated army boot-factory there. Another man who has been less successful but who has built up a considerable factory organization had several years in Cawnpore and Bombay. These contacts brought him in touch with European business and also with Indians, perhaps caste-fellows, who had become prosperous.

From the point of view of capital requirement, of cheap working force and active market, the shoe industry has also been favored. A crude building which may serve to shelter workmen during the few months of rain, and as a safe place for storing the few simple machines, tools and materials may be rented cheaply. Sewing machines may be purchased on the installment plan and the workmen make by hand most of their simple tools. A laboring force made up of his own caste-fellows is also a great advantage to the typical Agra shoe manufacturer.

The few weavers who have built up hand-loom businesses whose size and organization for production and marketing entitle them to the name "factory" have succeeded, so far as I have observed, by reason of their exceptional ability and rather unusual experience. There is a typical example in Ludhiana in which a merchant and a master weaver joined in establishing a factory. They have now parted company and each is operating, apparently with success, a factory of his own. In this instance the weaver was a very able and ambitious young man who made good use of his years of association with a man who understood marketing. His alertness in producing what the people will buy and his business-like methods have advanced him in a difficult field. But he was no ordinary weaver. Though of a lower caste he had exceptional business training, had associated with Europeans, and had twice been head master of Salvation Army weaving schools. His conversion to Christianity had changed his fatalistic, pessimistic outlook to the more optimistic and pushing attitude which to the Oriental has come to be synonymous with "Christian." He has adopted western ideas about standardization, keeps his goods up to sample, and has made a reputation for honesty.[23] Moreover, he has assumed a western attitude towards improved looms.

When a factory is built up by an Indian capitalist a long pe-

[23] A weaver's honesty is a joke in all oriental countries.

riod elapses before the complete organization is attained. Numerous processes continue to be "put out" or performed on the "finance and order" system. Even when power machinery is introduced and all the work is brought into one building it is only by degrees that the master finally undertakes to direct the labor as a single force and to accept both the financial and the technical responsibilities of production. By the use of the contract system and by other devices the factory owner postpones the responsibility of centralized management and manufacturing risk.

Again there are two main types of evolution depending upon the particular industry and the traditions of the person who installs the machinery. In both, the ownership of the machinery and of the raw materials and finished product and the provision of hands for the various tasks are divided among two or more persons. For example, if a putting out merchant purchases machinery for cotton spinning, he is likely to continue to own the raw materials and the finished product. But probably he will at first entrust the provision of the labor—except that employed in driving and caring for the machinery—to one or more labor contractors.

In many establishments the only change from putting out the work in the employer's building is that the employer installs machinery and the necessary hands to operate it, such as an engineer and machine fixers. The work of feeding and tending the machines and removing their products is then taken over by one or more contractors who are paid by the piece but are allowed to make their own arrangements with their laborers.[24] One of the few factories which makes brass utensils by mechanical power is at Bangalore and it has three contractors for the main tasks.

Similarly in coal mining, a capitalist installs machinery but leaves the provision of all labor except drivers and mechanics to contractors. This is indeed usual in Indian mining, accounting, it is said, for 70 per cent of the output of the principal coal field, Jharia. Generally a single contractor provides all miners, carriers, loaders, etc., and is paid a flat rate per ton extracted. Though the manager is responsible under the law for the safety of workers in the mine, "even the safety men are not the manager's subordinates, being se-

[24] This system is applied in the largest cotton spinning and weaving mills operated by Europeans in China. The Japanese, being much more familiar with the Chinese language and point of view, are able to deal directly with individual workers. But the contract system is employed in many iron works and other shops in Japan.

lected and paid by the contractor." [25] Also the manager has "ordinarily no responsibility for the selection of the workers, the distribution of their work, the payment of their wages or even the numbers employed." Sometimes two or three contractors or subcontractors divide the work of stacking, mining or loading. Even when the company undertakes to hire its own labor it frequently does so on the gang system, that is, one man brings a group, is responsible to the management for their work, and receives pay for their work as a lump sum. These are examples of industries in which machinery is generally installed by the owners of raw materials and finished products.

The second important group is that in which the machinery is installed by one who does not own the raw materials. In earlier times this was often the custom, and especially in the newly industrialized countries many important industries remain in this group. Flour milling was long conducted in this way in the West and almost every small town in India now has its small power-driven mill which grinds not only for merchants but in tiny lots for families. As in the Occident, however, flour milling is coming to be a completely centralized capitalistic process.

Among the most important factories working in this way are the rice hulling and polishing mills, the cotton gins and presses and the jute presses. Here the owner of the factory often operates as a putting out worker on materials provided by others. Indeed, in many instances the entire plant is leased at so much per unit of work done. Even when the owner operates the plant, he provides mainly the men to drive and care for the machinery and leaves the handling of materials as largely as possible to contractors or to the owners of the raw materials. The merchant who owns the rice or the raw cotton often provides his own hands for this extra work. This appears to happen often in rice milling, occasionally in cotton ginning and pressing, but never in jute baling. Usually one or more labor contractors become responsible for different stages of the work.

While in the textile mills direct payment has long been made to almost the entire force, something similar to a contract system results in many places. The jobber (foreman) in a cotton or jute mill formerly recruited—about half of the jobbers do so now—and is still responsible for, the group beneath him. Ordinary workers

[25] *Report of the Royal Commission on Labour in India*, 1931, Cmd. 3883, p. 119.

are paid piece or time wages by the factory direct, but the old custom of *dasturi,* or commission giving, is still firmly entrenched. Total wages often go in effect into a pool out of which the jobber, the man with the power, is allowed a good share.[26] In effect, the jobber is not unlike a contractor who manages his group and "allows" them a certain share of their earnings.

Also the large factories still find difficulty in accepting as fully as in advanced industrial countries the entire technical responsibility for production. For instance, in power weaving the custom has long been either to fine to the extent of the loss for bad work or to force the weaver to buy the cloth at its actual cost or, more likely, at what it would have been worth had it been properly woven. Largely because of labor unrest this is now being discontinued, but it has been closely akin to the "finance and order" system already discussed in which the merchant refuses to accept responsibility for production not up to his standard.

Besides these variations from standard factory organization as applied in advanced industrial countries in single factories, a given community often presents various types of organization in separate concerns. Bangalore has weaving merchants in the courts of whose homes debt slaves are paying the obligations of their fathers. Outside, independent families work and sell their products while still others exhibit every degree of dependence upon their wealthy patrons, some working for wages and others buying raw materials and selling finished products to the same merchant. Here there is elaborate division of labor, often very careful supervision, amounting almost to forced labor, but yet strong pressure on the worker to stand good for any bad results in manufacture. Above these in the scale of organization are the small "factories." Several are mere collections of workers, still using the most primitive equipment, together in one place, and working at piece rates. Another factory operated by two brothers is only an appendage to their cloth business and they further manufacture in their own homes and by means of outside workers. Their plant approaches a real factory. They do their own dyeing, preparing and weaving. Labor is under constant supervision, there is thoroughgoing division of labor and several workers are paid time wages. An effective warping machine is constructed out of some old bicycle wheels, there are 45 hand

[26] See section on *dasturi,* Chap. XV.

looms, some with dobbies, a few foot-power Jacquards and three simple power-looms driven by electricity.

Still another factory—though it has only 17 power looms—uses throwing and twisting machinery. Owned by a "weaving expert" and a capitalist cloth merchant, it hires at time-rates and operates on a carefully arranged time schedule. Everything, including dyeing, is done by workers employed directly by the owners at the owners' risk. All save the weavers are paid time-wages. Though small, this is a busy little place, suggestive of what much of India may be in another quarter century. More completely organized are the great cotton mills, applying with the modifications already described, the European system on European machinery.

Besides the great variety in different concerns within an industry there is often a similar variety within a single business concern. Especially in Surat, the merchant-capitalist usually produces cloth under several different methods of organization. One capitalist family operates a small power loom factory of six looms, a foot-power loom factory of eighteen looms, and also puts out work to about 200 looms of all patterns located in small shops and workers' homes. The dyeing, warping and finishing, as well as much healding and bobbin-winding, for all these looms continues to be put out to workers in their own homes. In this concern the foot and power-looms tend to be used for plainer and cheaper goods of mercerized cotton and artificial silk, which, on account of low costs for materials and conversion, now tend to displace the much more expensive brocades made by hand.

A shoe factory in Cawnpore employs on lease the latest model American shoe-machinery operated with elaborate division of labor, by men on monthly wages, while just beside these machines and under the same roof and management are individual cobblers, each performing all the processes of making pairs of shoes by hand at so much per pair. In a large woolen mill operated, strangely enough, by the same company, there are spinning wheels, hand-looms, both hand- and power-knitting machines, and elaborate power machinery for producing and making up high-grade cloth for almost every possible type of woolen clothing. Besides blankets, underwear, knitted goods and a large number of specialties—such as college hat bands and Scottish plaid rugs—this concern is prepared to turn wool direct from the sheep into a suit for lady or gentleman—tail-

ored in the latest London fashion—or to outfit a police force or an army.

In organization the same variety prevails. A given individual divides his time between working for others at their homes or factories and in his own home or shop—in the latter case often as entrepreneur and employer of labor. Some parts of his product may serve to pay obligations which correspond to feudal dues, other parts may fill orders given by customers who may or may not provide their own raw material, and still other shares may be sold partly at retail and partly to dealers for distant markets. Into home or shop work may be introduced a large element of direction and discipline, as well as a high degree of dependence. On the other hand, going into the employer's building does not mean the beginning of factory organization. Sometimes there is a higher degree of independence for the worker after that step is taken than before. Even when machinery is introduced, the full control of plant, men and machines is not taken over by a single business man. The owner may be unable to do more than operate the machinery, turning over the provision of hands to a contractor paid at so much per unit of output; and finally the entire plant may produce according to the suggestions of a shrewd merchant who takes the entire product at a rough rate above poundage cost of raw material; or a still more timid factory owner may work at piece-rates for a merchant-capitalist. The single manufacturer may secure production by a confusing maze of nearly every possible type of organization.

To oversimplify the account of industrial evolution as it is taking place in India is both easy and misleading. The world into which the embryonic factories have come has been very unlike that which received the early European factories. Transport is highly developed, much machinery has become almost automatic and there has been the sharpest competition from foreign countries which are in every aspect of manufacture, finance, transport and marketing, far in advance of India. This environment has doubtless modified the evolution of the factory system, but the impact of modern machinery, methods and ideas upon the simple economic organization nevertheless affords parallels to the European industrial evolution. We see the tenacity of handicraft industry in the production of non-standardized goods, as in Europe. With the growth

of distant markets we see the "finance and order" and the "putting out systems" displaying the permanent vitality and adaptability of long continuing institutional forms. Finally we discover a perfect maze of organizational types functioning not only side by side but in the same business and under the same control. We have also the great variety of ways and adjustments by which progress is made towards the full development of the factory system, despite the difficulties of machinery and disciplined production among a people unaccustomed to the habits and concepts which the machine-age involves.

Gradually the new conditions are teaching the lesson of factory organization. The demands of consumers are changing from the fewer goods produced by hand—not infrequently of solid worth and high artistic merit—to more of standardized goods produced by machine, frequently of less durability and less artistic value. Owners and managers have acquired the habit of close-knit organization and quantity production, while laborers have lost a certain amount of the simple poise which leisurely village life induces and have taken on some of the more restless habits of the urban and machine age. Yet the new discipline and tempo, even after recent generations of enforced experience, is only just entering India.

CHAPTER VII

THE RECORD OF INDUSTRIALIZATION

By 1800 factory industry had been well introduced in England and during the next quarter century was being further developed there while it was also obtaining a foothold in a few other European countries and in America. By 1825 its products were streaming out into the markets of the world. British self-interest was already preparing her to abandon the old mercantilist policies and the academic doctrine of free trade had attracted numerous converts from the business community. During the early years of the century, various attempts were made to introduce the new power-driven machinery into the Orient. Two spinning mills, operated by cattle-power, were set up on the banks of the Nile, and one, operated by steam, just outside Calcutta. The most successful new Indian enterprises appear to have been those applying steam to shipping; though it was several years before the problem of coaling stations was properly worked out to make the use of steam vessels economical on the long voyages between India and England.[1] Small steamers were used on rivers, especially about Calcutta, one of the most effective uses being the towing of ocean sailing ships between Calcutta and the sea.[2] In 1832 the East India Company had about seven steam vessels in India, while four others belonged to private companies.[3] Yet in spite of the fact that a steam vessel could make in a week a voyage for which a sailing vessel took a month, the privately owned steamers were unprofitable.

Besides their use on vessels, steam engines were also being employed in India in a coal mine, in docks, in a paper mill, in cannon-boring, in coining money, grinding flour, silk-reeling, and in

[1] The first voyage by steam (and sails) was that of the *Enterprise* in 1825. This ship was not well suited for such voyages but she was used very effectively later in passages between Calcutta, Rangoon, Madras, etc.

[2] It was believed that vessels could be pulled on water much as cars are pulled on rails. Lines of small "accommodation" vessels were towed on the rivers by tugs.

[3] *Parl. Papers*, 1831–32, X, Pt. I, pp. 129, 147.

the spinning, weaving and printing of cotton,[4] all in the neighborhood of Calcutta where European enterprise was most in evidence. A missionary organization had started a steam paper-factory, but their product was "very indifferent and inferior." A new flour mill was "the most extensive known" anywhere but both it and the cotton mill which was just starting, were considered "not promising." The premonitions of the cynics were fulfilled and these ventures did not flourish. Sometime about 1820 (the date is uncertain), a group of English girls was brought out to teach the Indians to operate the cotton machinery. They, and indeed all machinery and stores, had to come to India by way of the Cape in sailing ships. The foremen and laborers engaged in this enterprise are said to have died of cholera, and after a time the concern closed, though from the tombstones erected a few years ago in place of others which crumbled away, we learn that the business continued until 1837.[5]

In spite of the high development of the factory as a mechanical, power-driven system in England, at this time, decades more were required to make it a success in India.

During the second and third quarters of the nineteenth century momentous economic changes occurred in Europe. The railway was made a regular part of the nations' equipment and the steamship, with its fast time, regular schedules and low charges, began to chase the sailing vessels from the seas. The telegraph was soon to make possible a world market for such materials as raw cotton and raw jute. These auxiliaries of the factory system were exercising a marked influence in the formation of large economic and political groups. This was the period of the *Zollverein* and the gradual unification of Germany and Italy. In the United States as the railway facilitated the export of raw materials to the markets of the eastern States and Europe, and brought in manufactures, the American West was opened in real earnest. The sellers of factory-made goods, approaching from both directions, began to demand further entrance to the markets of India, China and Japan. This

[4] *Parl. Papers*, 1831, Reports of Committees on The Affairs of The East India Company, V, p. 128.

[5] This, the Bowreah Cotton Mill, was on a site belonging to the East India Company on the west bank of the Hooghly, where old Fort Gloster once stood. It was partly surrounded by a moat and in recent excavations a number of old cannon have been dug up, some of which are still lying about. It was on an extensive plot of land once laid out as a coffee estate and there is still a commitment to furnish to the overlord a certain small quantity of coffee annually.

more insistent penetration contributed toward bringing on the mutiny in India,[6] and the Opium War (which was to a larger extent a market war) in China. Even the American Civil War was partly a result of the competition for markets between the factories of England and those of the New England States. Japan found her old policy of isolation no longer tenable because the people whom, in the middle of the seventeenth century, she had expelled could not be so summarily dismissed in the middle of the nineteenth. Instead of travelling in wooden ships not much unlike her own, they now came in "great black ships" driven by steam engines which struck terror to the hearts of the *Samurai*. The factory system had put these western intruders in a new position of power from both the economic and the military point of view.

This was the situation soon after the middle of the nineteenth century. Especially after the opening of the Suez Canal, factory-made goods were streaming into India and all the other oriental countries. England had become "the workshop of the world" and would apparently continue to be such indefinitely.

But the very perfection of the system at home and the very improvement of the means of bringing its goods to the world's markets meant that the factory system itself could now be transplanted even to oriental countries. Spare parts could be obtained quickly and cheaply, and mechanics and engineers to install, operate and repair machinery could go to and from India at much less sacrifice of time, money and convenience. Also the railway was both opening the markets and tapping the supplies of raw material in India.

During the first five years of the second half of the century railways reached out from Calcutta, Bombay and Madras; coal mines began to be seriously worked in Bengal; and the first cotton mills in Bombay Presidency and the first jute mill in Bengal were started. From these beginnings India has now become one of the great industrial countries recognized as such by the League of Nations. Within about seventy-five years over two and one-half millions of persons have come to be employed in modern factories and mines and on railways.

[6] ". . . Lord Dalhousie perceived . . . that the vast and rapid extension of territory which had taken place during the ten years preceding 1856 must severely strain the cohesive powers of the British Empire in India." Sir W. W. Hunter, *Journal of the Society of Arts*, XLI, p. 330.

The changes which India has experienced are much better described as a commercial than as an industrial revolution. Relative to the great size of the country and its numerous population, factory industry is still very small. The opening of the railways and the development of inland and foreign commerce has brought specialization in such commercial crops as wheat, cotton, jute, and tea. Whereas the raw agricultural products of the villages were formerly made up by local craftsmen for local use, more specialized products have come to be exported, in exchange for factory-made goods, principally from England. The railways and steamships have made it possible for European power manufacturers to offer the Indian farmers much better terms than the Indian village craftsmen could give. Self-sufficing local economy has been displaced by international specialization and trade, much to the discomfiture of the Indian craftsman. As in other parts of the world, the Commercial Revolution has come first. Only slowly and in response to these new conditions and opportunities has there been a movement towards a real Industrial Revolution.

Thus although India has a very large amount of industry, the country as a whole is still overwhelmingly agricultural. There are various ways of indicating this, none quite sufficient in itself but all pointing in the same direction.

First, there is the proportion of the population dependent upon agriculture. In England the advance of factory industry was to some extent achieved through the transfer of population from agriculture to the factory towns and cities. While Indian statistics are very deficient, they show no similar movement. On the contrary, the successive census reports reveal a steady increase not only in the absolute numbers but also in the proportion of the population dependent upon agriculture. Between 1891 and 1921 the figures indicate a gain for agriculture of approximately twelve per cent. Although the figures are not really comparable for the entire period and the size of the movement can only be estimated, it has been a decided one. The War period showed marked growth of factory industry, yet for the decade 1911–21, the population dependent upon agriculture and pasturing *increased* roughly by 4,350,000 while that dependent upon industry *decreased* by 2,150,000. Probably this movement has been more marked in the decade 1921–31.

There are two groups of industrialists, as we have seen—those in the handicrafts and those in the factories. The former group is decreasing rapidly, while the latter increases rather slowly. There is a small movement from the old crafts to factory industry and a somewhat larger movement from these crafts to agriculture.

This change toward agriculture might be explained by the extension of the farming area, which, owing to the development of irrigation and the specialization of crops, has been considerable. In the past twenty years, the total cultivated area has increased by fifteen million acres (an amount equal to the entire cultivated area of Japan), most of which is newly irrigated. But the pressure on the land increases, as shown by the following table:

AREA OF CULTIVATED LAND PER PERSON DEPENDENT UPON AGRICULTURE AT RECENT DECENNIAL DATES

YEAR	1901–2	1911–2	1921	1931
Acreage . . .	1.28	1.24	1.21	——

The statistics showing growth of urban areas tell the same tale. In spite of the great growth of trade and manufactures the figures change very little. In the forty years ending 1921 there was an increase of only 1 per cent in the proportion of the people living in urban areas.[7] Even in the decade 1921–31 while the population of Bombay Presidency rose by 15.1 per cent, that of Bombay City fell by 1.53 per cent.[8] In 1931 almost nine tenths of the people were still in rural communities. The figures from 1872 are as follows: [9]

PERCENTAGE OF THE POPULATION IN URBAN CENTRES

YEAR	1872	1881	1891	1901	1911	1921	1931
	8.72	9.41	9.46	9.88	9.42	10.2	11.0

So also with regard to statistics of foreign trade. Manufactures have come to bulk relatively larger in exports and smaller in imports,

[7] The Indian Census makes no clear-cut definition of an urban area, decision being left finally to the superintendent of the census in the district. In 1921 thirty per cent of the urban communities (comprising seven per cent of the population classed as urban) was composed of units of less than 5,000 inhabitants.

[8] *Bombay Labour Gazette*, Oct., 1931, p. 137.

[9] *Indian Year Book*, 1926, p. 19, and *Indian Census*, 1931.

but only since the outbreak of the World War has this change been marked. The following table, computed from official figures, shows how slow this movement was:

PERCENTAGE OF TOTAL EXPORTS WHICH WERE CLASSED AS MANUFACTURES

YEAR	1875–6	1895–6	1900–1	1905–6	1910–1	1915–6	1919–20	1925–6
	11*	9†	10†	11†	9†	15†	15.7†	24‡

* *Review of the Trade & Navigation of British India*, 1875–6, p. 22.
† Calculated from *Statistics of British India*, 1922, I, p. 3.
‡ "Articles wholly manufactured"; calculated from *Trade of British India*, 1925–6, p. 57.

Other figures show the same tendency.[10]

PERCENTAGE OF EXPORTS CLASSIFIED AS "ARTICLES WHOLLY OR MAINLY MANUFACTURED"

PRE-WAR AVERAGE 5 YEARS	WAR AVERAGE 5 YEARS	POST-WAR AVERAGE 5 YEARS	1924–5	1925–6	1931–2
23%	31.6%	27%	22%	24%	27.4%

A comparison of the twelve largest exports for a selection of years shows that while raw agricultural produce still occupies the premier place, manufactures are becoming relatively more important.

The following tables show a change of emphasis. While cotton manufactures remain at the head of the import list, they have increased less in proportion than such items as machinery and sugar, which indicate respectively greater industrialization and a higher standard of living. But the country remains principally an exporter of raw materials and an importer of manufactures.

The largest of these imports, in spite of India's place as a producer of raw and manufactured cotton, has always been cotton manufactures. But whereas in 1875–6 cotton goods, including twist and yarn, amounted to just under 50 per cent of total imports and in 1913–14 to 31 per cent, in 1919–20 this item was less than 25 per cent of the total. In 1932–3 the imports of cotton manufactures from all sources was 26 per cent of total imports.

Figures given in the chapter on cotton manufacturing show that

[10] *Review of the Trade of India*, 1925–6, p. 57; 1931–2, pp. 168–171.

VALUE OF THE PRINCIPAL IMPORTS, ARRANGED IN THE ORDER OF THEIR IMPORTANCE FOR SELECTED PERIODS.

1882–83		1909–10 to 1913–14		1925–26		1929–30	1930–31
	Value in 1000 s. of Rs.		Value in 1000 s of Rs.		Value in 1000 s. of Rs.	Value in 1000 s. of Rs.	Value in 1000 s. of Rs.
1. Cotton manufactures	248,099	1. Cotton manufactures	521,769	1. Cotton manufactures	656,673	594,873	252,546
2. Metals	46,159	2. Metals	151,769	2. Metals	253,536	235,882	159,118
3. Machinery	13,423	3. Sugar	131,758	3. Sugar	158,336	157,765	109,647
4. Railway plant and rolling stock	11,164	4. Railway plant and rolling stock	61,121	4. Machinery	148,859	182,185	143,478
5. Provisions	10,871	5. Machinery	56,114	5. Mineral oil	100,511	110,404	104,819
6. Sugar	10,869	6. Mineral oil	37,203	6. Vehicles (⅔ motor cars and bicycles)	57,489	108,473	73,053
7. Raw silk	10,741	7. Hardware	31,704	7. Hardware	51,957	50,665	36,008
8. Coal	10,198	8. Woolen manufactures	30,837	8. Railway plant and rolling stock*	49,954	——	——
9. Woolen manufactures	9,848	9. Silk manufactures	27,729	9. Provisions	45,135	56,361	48,779
10. Silk manufactures	9,777	10. Provisions	20,510	10. Woolen manufactures	42,360	37,674	21,255
11. Mineral oil	8,660	11. Liquors	20,247	11. Raw cotton	36,448	34,215	63,894
12. Hardware	7,917	12. Vehicles	17,492	12. Liquors	33,375	37,663	33,176

*This was the post-War average of 5 yrs. 1919–24. Item was discontinued after 1928.

VALUE OF THE PRINCIPAL EXPORTS, ARRANGED IN ORDER OF THEIR IMPORTANCE FOR SELECTED PERIODS.

1882–83		1909–10 to 1913–14		1925–26		1929–30	1930–31
	Value in 1000 s. of Rs.		Value in 1000 s. of Rs.		Value in 1000 s. of Rs	Value in 1000 s. of Rs.	Value in 1000 s. of Rs.
1. Raw cotton	160,490	1. Raw cotton	332,783	1. Raw cotton	949,928	650,770	463,280
2. Opium	114,813	2. Rice	259,373	2. Jute manufactures	588,399	519,267	318,944
3. Rice	84,763	3. Oilseeds	241,640	3. Rice	399,721	314,966	277,677
4. Oilseeds	72,003	4. Raw jute	222,024	4. Raw jute	379,457	271,738	128,847
5. Wheat	60,689	5. Jute manufactures	202,487	5. Oilseeds	293,296	264,676	178,618
6. Raw jute	58,469	6. Wheat and flour	148,385	6. Tea	271,217	260,064	235,593
7. Hide and skins	44,437	7. Tea	130,678	7. Cotton manufactures	96,485	71,867	52,155
8. Indigo	39,129	8. Cotton manufactures	114,053	8. Hides and skins	72,338	79,827	54,663
9. Tea	36,994	9. Hides and skins	103,160	9. Leather	71,021	81,524	63,911
10. Cotton manufactures	25,783	10. Opium	99,617	10. Lac	69,010	69,672	31,374
11. Jute manufactures	14,878	11. Leather	42,958	11. Wheat and flour	51,645	12,842	27,492
12. Coffee	13,922	12. Raw wool	26,839	12. Metals and their manufacture	49,281	70,170	55,230

whereas in the five-year period, 1896–7 to 1900–01, 63 per cent of the country's cotton piece-goods were imported and only 10 per cent made in Indian mills, in the period 1920–1 to 1924–5 only 33 per cent were imported, and 38 per cent were produced in Indian mills. In 1932–3 Indian mills wove 2½ times as much cloth as was imported. There is only one other Indian manufacture which has had anything like so favorable a growth as this, yet cotton manufactures, which were 8 per cent of total exports in 1890–1, constituted only 6.5 per cent in 1909–10, 10 per cent in 1919–20 and 2½ per cent in 1932–3. Such items as machinery and railway materials, as well as metals, are still mainly imported. Only during the World War did the country develop a considerable iron and steel (especially rail) industry of its own which it is now trying to keep alive by protection. Jute manufactures have come to occupy a large place both absolutely and proportionately in the export figures besides furnishing materials for wrapping the country's own coarse products. In 1882–3 they amounted to slightly more than 1.7 per cent of total exports, in 1890–1 they were 2.7 per cent of the total while in 1932–3 they amounted to roughly 16 per cent of total exports.

The principal factory industries have been textiles, especially cotton and jute, and some woolens, that is, they have been in lines which were peculiarly adapted to the country. As India was the home of the hand manufacture of both cotton and jute, there was great familiarity with these fibers and skill in handling them, besides large home production of the raw materials. Also these were industries for which factory machinery and organization had already been brought to a high stage of perfection in other countries. Moreover, India was a very great consumer and importer of cotton cloth while the world's commerce was furnishing a rapidly expanding market for jute bagging and wrapping material.

Power and factory organization have been introduced in numerous other lines. The table on page 136 shows the numbers employed in the more important kinds of establishments under modern factory organization.

Two of the larger groups of these factories—food, and gins and presses—are seasonal except in a few cases, and operate for at most four of five months in a year. Among the food factories, rice mills are the most conspicuous and are seasonally operated.

INDIAN INDUSTRIAL EMPLOYEES: 1930

	AVERAGE DAILY NUMBERS EMPLOYED
Factories *	
Government and Local Fund Factories	142,882
Cotton (spinning, weaving, and other) Factories	352,268
Jute Mills	336,356
Engineering (including 55,228 in Railway Workshops)	144,568
Minerals and Metals	55,085
Food, Drink, and Tobacco	182,307
Chemicals, Dyes, etc	51,043
Paper and Printing	31,795
Processes relating to Wood, Stone, and Glass	37,614
Processes connected with Skins and Hides	5,991
Gins and Presses (including 138,883 in Cotton Ginning and Baling)	172,123
Miscellaneous	7,894
All Factories	1,523,302
Mines †	261,667
Railways ‡	819,058
Grand Total	2,604,027

* *Bombay Labour Gazette*, Jan., 1932.
† *Ibid.*, Feb., 1932.
‡ As of March, 1930. *Report of the Royal Commission on Labour in India*, 1931, Cmd. 3883, pp. 151–2.

We have seen that the first permanent cotton mill and the first jute mills, the first railways and the first considerable coal mining date from the period 1850–5. Only a start was made by 1860. Apart from the ill-starred Bowreah Mill near Calcutta in the 1820's,[11] the earliest cotton mills appear to have been built in 1854. The first of these was founded by an American named Landon at Broach; at nearly the same time another was built at Tardeo, Bombay, by a Parsee named Davar. In 1854 construction was also started on the first jute mill in Calcutta. In 1853 a short line of railway was extended from Bombay and the next year a short line was opened from Howrah, a suburb lying across the Hooghly from Calcutta, to the Raniganj coal field.[12] This furnished a cheap supply of fuel for the Calcutta area, something which Bombay has never possessed. Another short-line of railway out of Madras was opened for traffic in 1856. In 1857–8, 293,000 tons of coal were taken from Indian mines and 92,000 tons were imported. This alone indicates greatly increased industrial activity.

[11] The date of this mill is uncertain, dates ranging from 1818 to 1828 being given.
[12] *Bengal District Gazetteers*, XXIII, p. 131.

Other cotton mills were opened in the neighborhood of Bombay chiefly by Parsees, and other jute mills in the neighborhood of Calcutta, where Europeans were active. By the end of 1861 there were nine mills in Bombay and its vicinity, one in Broach and one in Ahmedabad, with a total of nearly 250,000 spindles and 2,143 looms while still other machinery was on the way.[13] By 1865 there were ten mills in Bombay City and three others in the Presidency. In the same year the first mill in Cawnpore was registered and that city was linked with Calcutta by the East Indian Railway.[14] The blockade of the southern ports in the American Civil War had shut off Lancashire's supply of raw cotton and the resultant high prices in India brought in large amounts of liquid capital and stimulated all sorts of financial and industrial activity, although the slump which followed the boom put a stop to growth during the latter half of that decade. The terrible lesson of the Mutiny had caused the Government to push the construction of railways. By 1865, 3,363 miles were in operation. This allowed raw cotton to flow out to the markets and manufactured goods to flow in to consumers. Jute manufacturing capacity increased during this time but less rapidly. In 1866 five mills were working but with only 950 looms and the requisite spinning machinery.

No new cotton mills were started in Bombay Island between 1865 and 1872 and none in Bombay Presidency until 1870. Even by 1875 only a few mills had been added. But after 1875 there was a veritable boom, the number of mills in Bombay Presidency increasing by 1877 to 41 with over 1,000,000 spindles and over 9,000 looms, and in India as a whole, to fifty-one, with 1,244,206 spindles and over 10,000 looms. Several up-country mills were established during this period. Besides growth at Ahmedabad and Cawnpore, there was the beginning of later greatness in Sholapur and Nagpur.

Jute manufacture also experienced a boom. "From 1868 to 1873 the five mills, except the Rishra Mill, simply coined money and brought the total of their looms up to 1,250."[15] The number of factories remained the same until 1874, when five new mills began operations. By 1878 another eight had been launched, bringing

[13] Walter R. Cassels, *Cotton in the Bombay Presidency*, 1862, pp. 344–5.
[14] Gavin-Jones, in *The Bombay Presidency, United Province, Punjab, etc.*, compiled by Somerset Playne (London, 1920), p. 496.
[15] Wallace, *The Romance of Jute*, p. 27.

the total up to 18 with some 3,500 looms.[16] By 1879–80 there were 5,000 looms.[17]

In the ten years ending 1878, coal production in the Raniganj field, the only one then worked, had doubled and was nearing 1,000,000 tons annually. Railway lines had also doubled to over 8,000 miles.

For a few years there was another lull in both cotton and jute. Famine was widespread from 1876 to 1878. No new mills were built in Bombay Presidency until 1882. Another boom set in before 1885, and by 1890 the number of mills on Bombay Island had risen to 70, in Bombay Presidency to 94, and in India to 137, with over three and one-quarter million spindles and employing an average of over 100,000 workers daily.

Jute manufacturing capacity grew less rapidly and as much by the expansion of existing as by the establishment of new mills. By January, 1890 there were 26 mills with 7,804 looms, employing some 62,000 workers. Also both coal production and railway mileage had doubled again.

There has been some discussion as to the cause of this remarkable growth. In this decade practically free trade was instituted in India. Revenue duties were retained on only a few articles such as liquor and arms. Free-traders cite this as a demonstration of the truth of their doctrine,[18] but whether free trade alone can be given credit for such a great change is doubtful. The opening of the country by the railways and the commercial revolution, already referred to, were progressing rapidly. Practically as many miles of railway were put into operation during the decade of the "eighties" as had been opened in the preceding 27 years of railway history. Exports of merchandise increased by 50 per cent and imports of merchandise and treasure by 64 per cent. The chief influence that the new tariff had on the mills was in the price of machinery, stores and any steel used for construction, through the removal of duties of 5 per cent. On the other hand, it removed the small degree of protection which the cotton industry had enjoyed and allowed Lancashire goods to enter the Indian market freely.

The advance was caused by more important changes. The In-

[16] *Ibid.*, p. 28.
[17] *Statistics of British India*, First Issue, Part I, p. 41.
[18] See Sir Dinshaw Wacha's paper in the *Journal of the Royal Society of Arts*, July 19, 1918.

dian people were abandoning their old habits of local cloth manufacture for cash purchase, and that had a favorable effect upon the business of Indian cotton mills. As for jute manufactures, this was the period of great growth in the world demand for jute products. The grain lands of America and Australia, as well as other sources of crude products, were being rapidly developed by the extension of railway and shipping services while the later arrangements for handling grain in bulk had not yet been perfected. The greatly increased demand for the coarser types of gunny bagging affected that line of manufacture much more than did the small tariff changes.

By 1890 India had a large factory industry. Of some 300,000 people employed in factories and mines, about 200,000 were in cotton mills, jute mills and coal mines in the proportions of 11, 6 and 3. The growth from 1890 until the World War was fairly steady in all fields. Cotton spindles more than doubled, cotton power looms quadrupled, jute looms increased four and a half times, and coal raisings, six times, while the extension of railways continued at the rate of about 800 miles per annum. The average daily number of employees in concerns to which the Factory Act was applicable, from that time to the present, is shown in the following table.

AVERAGE DAILY NUMBER OF OPERATIVES EMPLOYED IN FACTORIES *

YEAR	TOTAL AVERAGE DAILY NUMBER	MEN	WOMEN	BOYS	GIRLS
1892	316,816	254,336	43,592	16,299	2,589
1897	421,545	335,702	60,271	21,564	4,008
1902	541,634	424,375	85,882	26,440	4,937
1907	729,663	576,652	103,764	41,977	9,359
1912	869,643	685,822	130,025	44,132	9,664
1917	1,076,201	857,221	158,644	49,882	10,454
1922	1,361,002	1,086,457	206,887	67,658	
1925	1,494,958	1,183,719	242,514	68,725	
1927	1,533,382	1,222,662	253,158	48,028	9,534
1928	1,520,315	1,216,471	252,933	50,911	
1929	1,553,169	—	—	—	
1930	1,528,302	1,235,425	254,905	32,597	5,375
1931	1,431,487	1,173,372	231,183	21,920	4,912

* Until 1922 the act applied to concerns employing fifty or more hands; since then it applies to concerns employing twenty hands or more. But this change has not altered the situation greatly.

In 1930 numbers of children declined by 18.94 per cent from 1929, and in 1931 by 29 per cent from 1930.

The numbers employed in coal mines increased in about the same proportion, that is, about fivefold.

By 1914 almost every considerable town in the country was touched by a railway and was thus brought into contact with new ways of thinking and working. Countless laborers from the villages were having a chance to try their hands at the new ways and other Indians were being trained in some of the problems of accounts, organization and management. These factors, together with the development of education, were bringing an increasing number of people to a realization of the greater efficiency of western methods and a willingness to adopt them.

Then came the World War and the enormous demands for factory goods due both to lack of the usual imports to the East from Europe and to the insistent demand from the war zone for other products. Cotton manufactures were the chief example of the former and jute and steel manufactures of the latter. But leather, wool, and numerous other commodities also felt the effect of Europe's frantic demand for the sinews of war. The established industries operated at the highest possible capacity and in general made enormous profits. So far as was possible extensions were made but unfortunately India's lack of machinery manufacture was found to be a limiting factor. A few concerns, especially in the neighborhood of Calcutta, furnished the principal machinery for several jute mills and by various means the number of cotton looms was slightly increased.

Next followed the post-War boom when production, profits and expansion outran all precedents. Old factories were extended and new ones laid out, resulting in very greatly increased productive capacity. In some lines this growth continued until 1930. In spite of the deep depression in the cotton industry 34 cotton mills with a spindlage of 188,000 were in course of erection in 1926 [19] throughout the country and even in 1930 several new mills were being built in Ahmedabad. The jute industry, through the activity of the Indian Jute Mills Association and some clever propaganda to the effect that a 54-hour week when crowded into four days is "short time," has avoided great expansion, in spite of the fact that the extremely good mills, large reserves and "restricted production", enabled the

[19] *Report of the Bombay Millowners' Association,* for year ending 31st August, 1926.

more successful companies to pay dividends of 20 per cent and upwards, until the depression was well advanced.

Besides these greater and more important industries, the factory type of organization is creeping slowly into other lines of production. Many of these, like cotton ginning and cotton and jute pressing, tea making and rice milling, are seasonal and while the factories add to efficiency they do not change the country from an agricultural to an industrial state. But others are operated throughout the year and tend to train certain people to permanent factory organization. An increasing amount of the simpler forms of engineering work is required in the construction of railways, bridges, docks, and mining equipment. Textile machinery, especially jute machinery, is being constructed, and army factories turn out a variety of military equipment. While the government's policy of purchasing supplies in England, together with the until recently almost negligible revenue duty on metal products and machinery, has not encouraged any such engineering progress as has occurred in Japan, there has been very real advance, especially since the World War. There are also power saw mills, cement works and some quarries, all of which are organized along factory lines. Agricultural implements are attracting attention and in a few places are being made by factory methods. Match factories, ice factories, tanneries, flour mills and a few breweries and bottling works have also come into existence. In fact, the factory idea has been fully popularized and more and more people now think of applying it further. It is commonly recognized that none but the factory method promises great financial success.

In three-quarters of a century the factory system has become well established in India. Many forces are at work which seem almost ready to bear fruit. Every provincial town is a center of progressive leadership in both industry and education, and is practically certain to carry on the process of industrialization during the succeeding decades. The first cotton mills were started in the United States about 1790 but it was not until after the Civil War, 75 years later, that the United States became a manufacturing nation. It is evident that such transformations require time which may be measured by generations.

CHAPTER VIII

BUSINESS LEADERSHIP: CAPITAL, BANKING, ORGANIZATION

IN India a mixed group, either Europeans or persons from outside the native Indian population and not subject to the pressure of the ancient scheme of things, has led the industrial movement, although some "pure" Indians have also taken a part. Most of the new industry has been founded and built up by British business men, among whom have figured many Scotsmen. They led and have continued to dominate in railways, indigo, banking, tea, coal and jute, and have had influence in other lines, especially in the organization of foreign commerce. That this should be so is natural for several reasons. British contact with India began about 1600 and grew closer and closer until certain functions of government were assumed in 1765 just as the Industrial Revolution was beginning in England. Administration required a stream of soldiers and officials, many of whom later left the government service and engaged in business. Servants of the East India Company were allowed, even encouraged, to trade on their own account.[1] A digest of the evidence given before the Lords' Committee in 1830 states:[2]

> The commerce of Calcutta was in the hands of a very small number of houses before the opening of the present charter. Previously to that time the houses were chiefly formed of gentlemen who had been in the civil and military service, but who perhaps finding their habits better adapted for commercial pursuits, obtained permission to resign their situations and engage in agency and commercial business.

Moreover, Britain was the principal producer and exporter of textile machinery, such as India was mainly introducing. This alone meant that large numbers of engineers and others were sent to India for longer or shorter periods in order to install machinery and teach In-

[1] Hunter, *Annals of Rural Bengal*, p. 353.
[2] *Parl. Papers*, 1831–32, X, Part II, App. 3, p. 496. Digest of Evidence before Select Committee on Affairs of the East India Company.

dians to operate it. Once in the country they soon learned something of its people and problems and were able to be of great use. India was not alone in this importation of men to handle the first factory equipment. Japan and China imported many occidental experts to install machinery and teach their people. Even European countries, especially Germany, used British managers in the early decades of factory industry; the United States did likewise and was especially favored by the character of its steady stream of immigrants. Other Britishers went to India in connection with the purchase of raw materials, the sale of products and shipping; naturally a number remained.

Second, India is a British dependency where Britons have the protection of their home government for both life and property. Britons in India are still in closer touch with the home country than they would be in any of the self-governing dominions.

Third, this period of industrial development and investment coincided with one in which business ability and capital were flowing from Europe, and from the British Isles in particular, out into various parts of the world—The United States, Canada, Australia and South Africa, not to mention the West Indies, China and Malaysia. India could hardly fail to be touched, for it possessed large amounts of raw material, ready markets and an abundant supply of untrained but cheap and tractable labor. As Indians themselves were unfamiliar with the conduct of modern business, entrepreneurs and capital had to be imported. With pioneering and colonizing traditions, Englishmen and Scotsmen naturally came to fill the need.

Finally, much of the business developed in India has been related either to the government or to interests in some way connected with Britain.

Undoubtedly, many of the business leaders have had conspicuous ability. Trained to close and efficient organization by apprenticeships at home, their outlook widened by travel and experience abroad, they were prepared to plan well on a large scale. Many of the dominating figures in the economic affairs of the British Empire have come up through Indian business. But the British have had no monopoly of business enterprise in India. There has been special activity among other immigrant groups more closely associated with the Indian population, the most conspicuous being the

Parsees who migrated from Persia in the eighth century. There are also several smaller immigrant groups, among them families of Jews, Greeks and Armenians, whose influence in the introduction of modern business has been relatively great in proportion to their numbers. Yet none of these have dominated any large field of modern business as have the British and Parsees.

The Parsees settled on the west coast of India above Bombay, in the territory called Gujerat. They were fire-worshiping followers of Zoroaster, driven out of their own country and allowed to settle in India. Racially and culturally distinct, they have never identified themselves with any Indian group and to this fact is largely due their very important place in economic development. They have lived in India, understanding its language and its people, yet not wholly of it. It has been necessary for them to maintain a close-knit yet progressive organization in order to avoid submersion in the larger population. They are tall and well-built, with lighter complexion than most Indians and with acquiline features which are very agreeable to the European taste. It is stated however that in recent years the community tends to weaken through a long period of in-breeding. Being an independent and highly intelligent group they have constituted an excellent bridge between the European and the Indian communities. With no restricting caste system, and therefore free from the Indian fears concerning the danger of visiting other lands or adopting foreign practices, the Parsees have visited Europe in large numbers and have readily adopted many European ways, notably European business methods.

In their earlier trading with Asia, Europeans were dependent upon native merchants who helped to dispose of their goods in the market and to secure return cargoes. With the growth of trade the Parsees came more and more to act as brokers for European importers. In 1812 it was stated that[3] "many of them were very opulent, and each of the European houses of agency has one of the principal Parsee merchants concerned with them in most of their foreign speculations." At the same time they engaged in business on their own account, trading to other Indian ports, to Africa, the Near East and China, some acquiring considerable wealth. They learned the business—especially of raw cotton, yarn and cloth—acquired a knowledge of the English language and became aware of

[3] Quoted from Milburn's *Oriental Commerce.*

English banking and power manufacture. With this equipment, plus a natural aptitude for business, the Parsees were eminently fitted to be the means of transplanting European manufacturing to India.

Although Bombay, where a Parsee started the cotton industry,[4] has been the chief area of Parsee activity, their influence has extended far beyond and there are few important business centers in western India where they do not play an important part in industry, commerce, law, philanthropy, government and education.

Besides the Parsee community in Bombay, there has been a small but compact group of Jewish business men. Like the Parsees and the British, and so many of their fellows in other regions of the world at various periods, the Jews in India have also been a group apart. In the early days they were merchants, some of them interested in exports to China. One firm played a large part in the opium trade.[5]

There have also been groups of Armenians and Greeks, both survivals of early trading in India, and both associated with Bengal rather than with Bombay. They have confined themselves principally to commerce and the simpler industries, especially to cotton ginning and jute and cotton pressing.

Within the Indian community proper, conditions were not favorable for the emergence of industrial leaders, partly because of the peculiar way in which factory industry went to India, as compared to its development in England. In occidental countries two principal groups were ready to institute factories; the merchants and the master craftsmen. Merchants had capital and marketing ability and the merchant-manufacturers under the putting out system had also some experience in handling labor. The master craftsmen had less capital and were not familiar with wide or distant markets but they understood the materials and their manipulation and had had experience with the smaller groups of workers.

For several reasons the craftsmen of India have not taken a similar part. First, much more capital is required to start a factory

[4] The makeup of the board of directors of the first of the Petit mills brings out the predominance of the Parsees and the coöperation of all the various communities in Bombay. Of eight directors there were two Europeans, one Jew, one Hindu and four Parsees, one of whom was chairman. The manager whose firm was made Secretary, Treasurer and Agent, was also a Parsee.

[5] Somerset Playne, *The Bombay Presidency, United Provinces, Punjab, etc.*, p. 326.

full-grown, as factories came to India, than to start a small embryo factory such as first developed in England. Second, the Indians were very much poorer. Many of them, especially those working in the lower grades of material which might be expected to be taken over by the factory, were little better than serfs. They had no capital of their own and no leverage which would secure for them the backing of men who had capital. They were without education and, more serious still, without ambition. They too had inherited an occupation bequeathed to their remote ancestors by the gods. This gave them a definite place in a social group which they felt no desire to abandon. They did not dream of wealth and, even if they had indulged in such visions, they would have preferred the certainty of their hereditary occupations, with hereditary customers and social relationships, to the uncertainty associated with so radical a change from all their traditions and experiences.

Neither did the putting out merchants who had dominated manufacturing in the more industrialized centers turn to the erection of factories. These men, represented in most places by the *baniya* caste, occupied a very important place in earlier manufacture and trade. But there were certain peculiarities about their business which hindered them from taking to the operation of factories. They were thoroughly familiar with trade and they possessed capital, on which they were always eager for profits. They did not, however, know much about the administration of labor. Their custom had been either to compel the worker to take the full technical responsibility of manufacture, themselves appearing only as purchasers of finished goods, whose production they may have financed, or to turn the entire supervision over to a jobber if they actually put out the raw materials.

Also, paradoxically, the conditions which brought the factory system turned them from factory operation because it also brought greatly increased opportunities in their more strictly hereditary lines of endeavor. The development of shipping and the building of railways resulted in larger trade, both external and internal, and offered new opportunities for lending money and especially for trading. This increased business brought greater profits into their coffers and overcame any tendency which they might feel to abandon their former places in the business and social order.

Of the remaining classes of Indians, the ablest was the Brah-

man but business lay outside their inherited sphere. They were not wholly above money getting—many being large land owners—but even if they had been prepared for manufacturing, they were not interested in it; they found enlarged opportunities in fields more closely akin to their hereditary occupations. As priests, they had dealt much with logical systems and reasoning had become a highly developed art among them. This, combined with their superior position in Indian society, fitted them to take an important part in the machinery for administration and justice set up by the British. For centuries it had been common for a ruler who was a Mohammedan or a member of some lower caste, to have a Brahman in general charge. Like the occidental merchant, the British government official required intermediaries to deal with the people. The Brahman often possessed excellent ability and also in generous degree the quality of a ruling class—prestige. Besides, the Hindu community had suffered under Moslem rule and Brahman officials were unlikely to participate in schemes which might challenge the authority of the new rulers. While the breakup of the old society took away their incomes as priests, Brahmans were from the first in demand as subordinate officials. The Indian civil service was built around Britons and in order to draw able men away from the opportunities open in Britain and in the growing English-speaking countries, it was necessary to pay good salaries. Furthermore, there was a desire to raise the office-holder above bribery and to maintain prestige. Even the lower posts and assistantships offered incomes which were high for Indians and increasing "Indianization" has broadened their opportunities.

The Mohammedan group has contributed little in this direction. Of the numerous families of Mohammedan traders about Surat and Bombay only a few turned manufacturers. One of the firms which originally traded between Bombay and Zanzibar recently ranked first among the Bombay managing companies in the number of spindles managed, but this is very exceptional. As early as 1887 a careful observer wrote: [6] "The factories owned by Mussulmen are seldom, if ever, insured, and one which has been built twenty years has never had a coat of paint applied to any of the woodwork."

The reasons why these people are not well fitted for industrial

[6] Factory inspector Jones, *Parl. Papers*, 1888, Cmd., 5328, p. 116.

leadership are not quite obvious. Much seems attributable to their lack of business experience during the centuries of Mohammedan rule. The respectable families generally had governmental connections while business was in the hands of Hindu castemen, often of large fortune and great shrewdness. When the British took over administration, the Mohammedans were thrown out of employment and were unable to make headway in other lines. Though they had received large official incomes, they had spent extravagantly, and consequently had little capital to invest. They inherited the early Christian attitude toward the taking of interest, and although this feeling is dying out, it probably helped to keep them poor.[7] Also the strong family feeling, the emphasis on brotherhood within the fold, and the cavalier attitude toward material wealth, would tend to dissipate incomes. In spite of their freedom from caste restrictions, Mohammedans have been one of the least productive business groups in India.

It is not to be supposed that everything has been left to the Britisher and the Parsee. Here and there, individuals or families, such as Sir Rajendranath Mukerjee in Calcutta or the Currimbhoys in Bombay, have broken away and, while the British and Parsees have been the most successful as groups, various Hindus and Mohammedans have done remarkably well in initiating business.

Capital. In spite of the very considerable industrial development, the amount of capital invested in India is, as compared to the population and the agricultural production, almost ridiculously small. In 1917–18 the total investments in the three chief large-scale industries—cotton, jute and coal—were estimated at only about 50 cents per head of the population.[8] Furthermore, a large part of the total invested in modern economic enterprises as well as in government loans, has been imported from Great Britain. Only recently have Indians been eager to purchase either government bonds or company shares.

Capital has been scarce not only because the resources of the country were undeveloped but also because the means for the investment of surplus wealth were few. In old India there were no

[7] Darling estimates that the Mohammedan farmers of the Punjab owe much more than a proportionate share of rural debts and states that almost the whole is due not to Mohammedans but to Hindus and Sikhs. *The Punjab Peasant in Prosperity and Debt*, pp. 19–20.

[8] See G. Findlay Shirras, *Indian Finance and Banking*, 1919, p. 392.

government loans or company stocks and bonds. Rulers carried out their projects by enforced labor or by taxation. The surplus wealth of rulers themselves had to be in materials which could be preserved—a store of value—and the most satisfactory were the precious metals and jewels. The people were in a similar position and much wealth has long been in this form. India's hoard of gold and silver is probably second only to that of the United States.[9] India imports about twenty per cent of the annual gold production of the world—an amount far more than in proportion to her monetary demands—most of which is hoarded. This great wealth is used as ornaments, especially for women and children, but also for men and as a store of value. These customs go back to an early stage of social evolution and to a political situation in which the ruler offered no guarantee against plundering—indeed often indulged in it himself.

It is customary to belittle the hoarding of metals and to claim that people who have practiced it were very silly. But under certain conditions hoarding is sound practice. Not infrequently famine forced a family to trudge for days and weeks into territory with better crops in order to buy. It was necessary to save up some commodity which was, at the same time, "indestructible," "transportable," "recognizable," and "divisible." The Indian peasant's crop sometimes furnished a surplus over the yearly needs of himself and his family. Naturally he wished to store some of it for "a rainy day," which sometimes appeared in the form of drouth. There is generally a certain amount of saving in India, as in Egypt in Joseph's time, of actual crops, but there are limits to this method. After a few years crops deteriorate and become useless. The peasant's buildings were already sufficient for his needs and, at any rate, funds could not be raised on such property in time of need. To buy more land was difficult or impossible and it too, was not "liquid." To increase one's herd of live-stock was only to develop business out of proportion to the chances of a return and to endanger further the precarious food supply. With no facilities for investment in which interest could be earned, the wisest procedure was to save, without interest,[10] in a form of wealth which

[9] See an article by G. Findlay Shirras, *Economic Journal*, Dec. 1929, p. 635.

[10] Everyone recognizes that under certain conditions it is good business to accept "negative interest," that is, to pay for having one's money kept until a future date.

would not depreciate physically or fluctuate widely in value. For this purpose the precious metals were preëminent.

Under such conditions the wearing of jewelry develops easily. Gold, silver and precious stones heighten the effect of personality and, since it would otherwise be idle, a part of the hoard may as well be used for that purpose. Moreover, since a family's gift to their daughter upon her marriage could not be in stocks and bonds, or land, it quite properly came to be in precious metals. Made into jewelry this beautiful material displayed to great advantage both the father's gift and the daughter's beauty. Only in this way could some of the utility which savers now receive in the form of interest and dividends be secured.

There are other reasons, which become as fixed as marriage itself, for the wearing of jewels by Indian women and children. A bride's property is much more likely to remain in her own possession if in jewels than if in gold bars—even in bonds or a banking account. Also if she has jewelry when left alone by her husband's death or desertion, she is independent.

This does not mean that there was never investment or the earning of interest in India. Indeed the taking of interest has been very common among certain people although it was sometimes, but not always, condemned by the ancient Hindu scriptures. "A Bramana and Kshatria shall not lend anything at interest." [11] Yet "earning by lending money" was recognized along with "labor" as a legitimate means by which people might support themselves. Prosperous villagers have loaned grain to their neighbors to be used for seed or for food until the harvest, and high rates of interest have been charged. So in the towns and cities various merchants and others have done more or less private lending. The village trader—that is, the *baniya*—has long granted consumers' credit to his customers and advanced money to farmers on crops and to artisans on their products. In all cases, however, these more or less petty lenders, besides having knowledge of and confidence in the projects, have had close business or close personal relations with the borrowers.

But with the development of new business conditions, these men, as we have already seen, found greatly improved chances for profit in their inherited caste occupations. They were sure of good returns

[11] Quoted by Samadar, *Economic Condition of Ancient India*, p. 57.

on all their capital without dabbling in any new and uncertain industrial enterprises. Rather unfortunately for industry, the new developments of transportation and commerce, as well as of money economy, caused a rise in the price of land and thus made landed investments very attractive. Professional men and officials have tended to invest their salary surpluses in this ancient and honorable form of property.

Yet the general Indian community is definitely developing the investment habit. The old customs are persistent but changes are slowly coming. People, especially about the commercial centers, prefer to put their gold and silver in banks at interest or to invest it in government loans or in company bonds and shares. Indians are far too appreciative of economic advantage to bury wealth when they are convinced that it can be invested *safely* and at good interest. They have begun not only to make a large share of the new investments but also to buy up projects developed by others. They now own practically all the cotton mill shares, perhaps over half the jute mill shares, much of the coal shares, nearly all the iron and steel shares and are securing large ownership of government loans and government-sponsored enterprises.

British nationals provided most of the capital for the indigo plantations though some came from Indian men of wealth.[12] Usually the "planter" himself did not bring his own capital but borrowed it through some of the "agency houses" or individuals in Calcutta.[13] Among the European individuals who advanced money in the earlier decades were the commercial employees of the Company, some of whom had princely salaries and were allowed to engage in extensive business operations on their own account.[14] Of course all officials, commercial, military and civil, were allowed to lend and a good deal of this was done through the Calcutta agency houses. We shall see later that an agency house in Calcutta—Messrs. Alexander and Co.—financed the first considerable coal-mining venture in Bengal and also supported the attempt to start iron manufacture by European methods in South India.[15] The same company, like most others, practically owned a group of indigo plantations. Branch

[12] *Parl. Papers*, 1831–32, X, Pt. 2, App. 1, pp. 454, 465, 466.
[13] *Ibid.* The planter mortgaged his buildings and often insured his life as a further guarantee to the lenders.
[14] See Chs. III and IV. Also Hunter, *Annals of Rural Bengal*, p. 357.
[15] See Chs. XI, XII and XIII.

offices of British trading companies were responsible for starting the first two jute mills. Messrs. Jardine Skinner and Co. advanced funds to Acland, founder of the first, and the Borneo Company started the second of these mills.

Capital for the railways and various public works, such as irrigation, also came largely from England. In 1870 there were only 368 Indian share-holders as against 51,519 British shareholders in Indian railways.[16] As the government either borrowed directly or guaranteed the interest, the investment appealed to conservative Europeans. The amounts invested for these uses were far greater than those put into industry.

The capital furnished by Indians has been drawn from a variety of groups. Parsee and other merchants have provided a goodly share; individuals from various walks, especially professional men and officials, have invested their salaries. A few ruling princes have invested, especially the Maharajah of Gwalior, the Gaekwar of Baroda and the Nizam of Hyerabad. Money made in the opium trade to China and in the cotton boom during the American Civil War played a large part in building the first cotton mills in Bombay.[17] In Ahmedabad a retired government official, some local *shroffs* (bankers) and a reigning prince were early investors.[18] At Cawnpore the European community was more active, and English military men, army contractors and European merchants joined in starting the first mill.[19] In many places, especially in Ahmedabad, but also in Bombay, Sholapur and elsewhere, the public deposited money on interest with mill-owners, thus making possible the starting of one mill after another in a great chain.[20] This custom still continues and brings in large sums in many places.[21] Perhaps the main portion of industrial capital has been saved out of industrial profits.

[16] *Report on the Working of the Indian Railways,* 1875, p. 15.
[17] The Indian Industrial Commission, *Report,* p. 65.
[18] Badshaw, *Life of Ranchorelal Chhotalal,* p. 16.
[19] Gavin-Jones, an early leader in the development of Cawnpore, in *Bombay Presidency, United Provinces, the Punjab, etc.,* 1920, p. 496.
[20] See *Report of the Indian Tariff Board* (*Cotton Textile Enquiry*), 1927, III, p. 298.
[21] A cotton mill in Indore, which according to statistics published by the Bombay Mill-owners' Association, had in 1925, Rs. 2,015,000 of paid up capital, had, according to L. C. Jain (*Indigenous Banking in India,* p. 47), borrowed on fixed deposit Rs. 2,932,859. Besides this it had Rs. 1,643,947 of other unsecured loans and Rs. 722,874 from the Imperial Bank of India secured by a lien on the liquid assets of the company.

While considerable amounts of capital have been "invested" both by British people and by Indians, this has gone not so much into industrial fields as into public utilities and government loans. In 1917–18 it was estimated that only 19 per cent of the total capital "invested" in India represented the paid up capital of joint stock companies and that only six per cent of the total was invested in coal mining and cotton and jute manufacturing. The table on page 154 shows estimates of the various amounts invested in 1905–6 and 1914–15.[22]

Nearly half the national debt is in sterling and held in England while the remainder is in rupees and held in India, partly by Indians, though doubtless a considerable part, even of this, is held by Europeans domiciled there. But the Indians are gradually purchasing their sterling loans too, choosing thus to invest a part of the wealth which they once kept in jewelry.

It is more difficult to separate the foreign from the Indian investments in joint-stock companies. In 1926–7 there were 856 companies registered elsewhere but carrying on a part or all of their business in India, as against 5,690 companies registered in India. But the outside companies were so much larger that, though their number was less than one-sixth that of the Indian companies, their total paid-up capital was nearly three times as much, equivalent to Rs. 7,750,000,000 as against Rs. 2,770,000,000 for the Indian-registered companies.[23] It must be remembered, however, that these outside companies do only a portion, in many cases a very small portion of their business in India. Again many of the shares of the Indian companies are owned by Europeans both within and without India.

Currency. Everywhere the development of a sound currency has had close relation to economic—especially to industrial—development which rests upon exchange. In India this problem has had special importance because of her place in the "silver question."

Before 1893 India, like China, was on a silver standard; but the greatly increased output of silver and the movement toward the single gold standard in other countries resulted in a marked decline in the international value of the standard silver rupee. Since the

[22] G. Findlay Shirras, in Indian Industrial Commission, 1918, *Evidence*, II, p. 854.

[23] *Statistical Abstract for British India*, Sixth Issue.

STATEMENT SHOWING CAPITAL INVESTED IN INDIA, SO FAR AS ASCERTAINABLE FROM AVAILABLE STATISTICS

	1905–06 £(1,000)	1914–15 £(1,000)	PERCENTAGE OF TOTAL SHARE CAPITAL	PERCENTAGE OF GRAND TOTAL OF INVESTMENTS
I. Paid up share capital (including debentures) of companies, registered under the Indian Companies Act, and of foreign companies incorporated outside India (excluding insurance, navigation and general trading companies, which conduct only a part of their business in India)				
Presidency Banks . . .	2,400	2,500	2.6	.5
Indian Joint Stock Banks and loan Companies .	1,913	3,940	4.1	.8
Insurance	67	339	.4	——
Tramways	1,406	2,367	2.5	.4
Navigation	205	859	.9	.2
Cotton Mills	10,158	13,907	14.8	2.6
Jute Mills	7,015	10,510	11.1	2.0
Cotton and Jute Screws and Presses	1,159	1,942	2.1	.4
Paper Mills	323	433	.5	.1
Rice Mills	1,144	865	.9	.1
Saw and Timber Mills . .	390	226	.2	——
Tea Planting Companies .	15,682	22,589	24.0	4.3
Coal Mining	1,604	4,014	5.2	1.0
Gold Mining	2,573	2,549	2.7	.5
All other companies (including General Trading Companies) . .	9,825	26,319	28.0	5.0
Total	55,864	94,259	100	17.9
II. Capital outlay, debts, loans, etc.				
Railways (capital outlay) .	239,012	346,148	——	65.6
Irrigation (capital outlay) .	25,669	36,679	——	7.0
Telegraphs (capital outlay)	6,204	8,350	——	1.5
Port Trusts (capital debt)	9,011	20,196	——	3.8
Municipal loans	12,993	16,657	——	3.1
Coöperative Societies(paid-up capital)	31	5,977	——	1.1
Total	292,930	434,007	——	82.1
Grand total £(1,000) . .	348,784	528,266	——	100.0
Equivalent to Rs. (100,000)	52,318	79,210	——	——
or to $(1,000) . . .	$1,743,933	$2,640,333	——	——

taxes were collected in rupees, while considerable payments were being made in England for salaries, furlough and pension allowances, government stores and interest on debt, the government found difficulty in meeting its payments regularly. International trade with occidental, gold-using countries, was also much disturbed because of the difficulty of calculating prices and making contracts in advance. This was especially serious for the importers, most of whom were British, because the falling value of silver made necessary constantly rising prices for imported goods in terms of Indian money. Exporters and manufacturers were in a better position. If they sold to China, still on a silver standard, the two price levels tended to vary together, and if they sold to gold standard countries, as the value of silver fell, the Indian exporter received more rupees for his goods. Since his costs were reckoned in rupees,[24] his profits were thus increased.

The government undertook to stop this continuous fluctuation between Indian and European moneys and to that end set up in 1893 the "gold exchange standard." The international value of the rupee had fallen from about 50¢ in 1850 to about 31¢ in 1893. It was then stabilized in terms of British money at 1s. 4d. (32.48¢). As is well known, its value was to be maintained by the Indian government undertaking to provide in India exchange on London at this price plus slightly less than the cost of transporting gold, and to furnish in England exchange on India at a price just under the cost of buying and transporting gold thither. Indian prices were thus kept in harmony with world gold prices by "manipulation." The government regulated the quantity of money in circulation and was thus able to keep Indian prices at a level which would keep the international value of the rupee between the two limits at which it was ready to buy and sell exchange. While it had long been the practice of certain European central banks to hold a part of their reserves in exchange on other countries, this was the first case in which the money of a great country was virtually convertible not into gold or silver but into sight exchange on another country.

In conformity with occidental custom, the government also undertook to popularize paper currency but so deep-seated was the custom of using silver that progress was slow. Gradually paper

[24] Except machinery and stores purchased for gold in Europe.

won its way about the large cities but even now the silver rupee is preferred by many peasants, though like the American silver money it is "virtually a bank note printed on silver" and worth far more than its metallic content.

During the World War there was a great and insistent demand for Indian products and the government restricted the sale of council bills, that is, bills of exchange on India, in London. At the same time the unexpected rise in the gold price of silver,[25] plus the great decline in the gold value of British money, drove the exchange value of the rupee from 1 shilling 4 pence at the beginning of the war to 2 shillings 8¾ pence in February, 1920. The government then undertook to stabilize the rupee at 2 shillings, or, when the pound sterling should be brought back to par, at 50 per cent more than its gold value before the War. This attempt ended in almost ignominious failure [26] and by July, 1921, the rupee had fallen to 1 shilling 3¼ pence sterling, equivalent to 1 shilling and ¼ pence, gold. The rate then rose again and in September, 1924, the rupee was worth about 1 shilling 4 pence gold, as it had been before the War.

This seemed a relatively simple escape from War-time currency difficulties. It would have been relatively easy for the country to return to pre-War value with respect to gold. England was herself then making arrangements for bringing her own money back to par although it was still far below. Since the Indian currency was wholly a "managed" currency, whose quantity (and unit value) depended upon the amount which the government chose to issue, there was no difficulty in restabilizing at the old level. Several countries had stabilized at less than the pre-War value but none had raised the value of its currency unit. Even England decided to go back to par only after long discussion and then against the advice of some of her leading monetary authorities. She found the ordeal so difficult that it has again been abandoned.

Yet the Indian government determined to raise the value of the rupee to 1s. 6d., that is, to 12½ per cent more than it had been prior to the War. This aroused heated argument in which Indian business men and also some European groups took a strong stand

[25] Chinese money showed a similar fluctuation.

[26] Though the currency was deflated by Rs. 346,800,000. *Report of the Royal Commission on Indian Currency and Finance. Parl. Papers,* 1926, Cmd., 2687, p. 8.

in favor of the pre-War value. In this case, however, the government was in a very strong position and by regulating circulation easily succeeded in placing the value at 1s. 6d.

The establishment of the Indian currency system, giving, as we have already seen, a remarkably stable price-level in the country, interrupted the close relationship between India and her great neighbor-customer, China, but it placed her on stable relations with all the gold standard countries. Within India it has provided a standard monetary unit and fixed relations between silver and the subsidiary copper, a condition infinitely superior to the currency chaos which has prevailed in China.

Banking. Banking is not highly developed in India and has been concerned with commerce rather than with industry. "The lack of financial facilities is at present one of the most serious difficulties in the way of extension of Indian industries" wrote the Indian Industrial Commission in 1919.[27] Events of the last decade have tended to increase this difficulty. Comparisons with western countries in terms of banks or banking capital per capita are meaningless, but even as compared with Japan, India is ridiculously backward. Whereas in 1926 India had, excluding the Imperial Bank of India, 73 banks with a total paid-up capital, surplus and reserves of Rs. 119,200,000 ($42,912,000), Japan had on June 30, 1927, excluding the Bank of Japan, 1,513 banks with paid-up capital, surplus and reserves of Yen 2,850,324,000 ($1,425,162,000). That is, Japan's per capita banking capital was roughly 150 times that of India's. Out of 2,500 towns in India—generally places of 5,000 or more inhabitants—only 400 have joint-stock banks or their branches.[28]

A number of divisions characterize present Indian banking, the principal being that between "indigenous" and European banking. The former prevails mainly in the interior and is concerned with the financing of agricultural and craft production and with internal trade, while the latter prevails at the ports and more Europeanized centers and has to do mainly with the business of the government and of foreign trade. Some of these banks also furnish a considerable amount of credit to modern or "organized" industry.

The banks modeled upon European lines are divided into government banks, foreign exchange banks and Indian joint-stock

[27] *Report*, para. 292.
[28] *Report of the Indian Central Banking Enquiry Committee*, 1931, I, Pt. 1, p. 106.

banks. Until recently there was no central bank but some of the functions of a central bank were performed by the Imperial Bank of India, formed by the amalgamation in 1920 of the three Presidency banks of Bengal, Bombay and Madras. These three banks had been organized under the ægis of the Company's government between 1809 and 1843 and had similarly been semi-central banks. Early in 1934 an Act was adopted providing for a new Central Bank which is to be "a shareholders' bank free from any political influence."

The foreign exchange banks are generally branches of foreign banks established in India to finance import and export trade. Most are British and Colonial banks but there are American, Japanese and French banks. Some five or six carry on most of their business in India but the others do business in various other countries. The Indian joint-stock banks are ordinary incorporated banks for the conduct of general commercial banking business and are largely Indian owned.

There is also considerable lending and other business of a financial nature conducted on old fashioned lines. The recent Indian Central Banking Enquiry Committee divided these into two categories and named them Money Lenders and Indigenous Bankers, though the dividing line between the two is very indistinct.[29] Money is lent privately by those who possess it, whether they be landlords, professional men or merchants. The lack of adequate banking facilities and the high rates of interest make this personal lending very common; but the most important phase of this type of lending is carried on as a definite part of the business of men who are primarily merchants. Mainly it is lending for consumption and on personal security with high interest, but it may be for agricultural or handicraft production and there may be the pawning of chattels or the mortgaging of growing crops, live-stock or land. Most of such lending is subsidiary to local trade and with private funds, though the merchant may borrow funds from wealthier persons to lend out. Frequently, as mentioned earlier in this chapter, it is combined with the business of a putting out merchant and is then used for financing handicraft production. Poorer farmers, too, are dependent upon these local lenders. They receive advances of food, fertilizers and equipment and give a lien on their growing crops. Such borrowers are poor risks, so beside paying high interest

[29] See *Report*, I, Pt. 1, p. 74.

they are compelled to part with their produce on disadvantageous terms.

The business of indigenous bankers, or *shroffs,* is better organized though it too is commonly conducted along with trade. But here trade is likely to be the less personal wholesale trade and security is both easier and more insisted upon. In the large cities this is also associated with bullion dealing. Some features of the business are more like banking. A few give pass-books and even forms similar to checks but generally they receive only fixed deposits or call loans for which they pay agreed rates of interest. These they lend in turn at higher rates. There is considerable transferring of funds by drafts and originally these were written in a script understood only by the dealers.

Such "bankers" have agents or correspondents in all important towns. Competition is keen and the rates of discount generally bear a definite relation to the rate charged by the Imperial Bank, which is closely akin to a central bank rate. Trade is financed by the drawing of bills of exchange, called *hundies,* which is said to be a corruption of the word "Hindus." Sometimes these are drawn as mere "finance" bills and discounted with larger banks. The Imperial Bank is authorized to advance emergency currency for seasonal demand against trade *hundies* up to Rs. 120,000,000; but it has had to put some pressure on the market to secure sufficient *hundies* for the purpose.[30] A little over a decade ago, for the Bank of Bengal and the Bank of Bombay *hundies* sometimes "exceeded one-third of their total advances" and during the busy season were "rarely less than one-quarter." [31] The *shroffs* generally discount the paper which they accept at 1½ to 4 per cent above the rate at which it is rediscounted by the Imperial or by some joint-stock bank. In this way the rate is adjusted to the rates prevailing among the larger modern banks. In slack seasons these bankers lend at rates much below those of the Imperial Bank. Their rates fluctuate much more than the Imperial rates because their business is still confined to internal affairs and takes little account of the demand in foreign trade or in foreign countries.[32]

Old methods of financing give way slowly to new. After the

[30] See evidence of Sir Basil Blackett, *Report of the Royal Commission on Indian Currency and Finance,* 1926, IV, p. 24. Also Jain, *Indigenous Banking in India,* p. 179.
[31] Findlay Shirras, *Indian Finance and Banking,* p. 523.
[32] *Ibid.,* p. 342.

changes wrought by the growth of commerce and transportation, financing became too profitable to be neglected. A few old style bankers have changed to new methods but generally they have merely utilized the modern bank's facilities for the transfer of funds and the discounting of paper.

Like manufacturing, modern banking was initiated in the European community and, like manufacturing, it was usually an extension of trade. Much early banking was merely manipulation of the current funds and credit of trading concerns, which often acted as depositaries for various people in India. A report in Parliament stated: [83]

> They had of course a great many friends and acquaintances in the respective services who lodged with them their accumulations. This money they lent to others, or employed themselves for purposes of commerce; they were, in fact, at first rather the distributors than the possessors of capital. They made their profit in the usual course of trade by commission, and by the difference of interest in lending and borrowing money. In the course of time, by carrying on a successful commerce, many became possessors of large capital and returned to England, leaving great part of it in India."

As we have already seen these houses later frequently acted as "investment" bankers and provided funds for the establishment and operation of indigo plantations, coal mines and iron and steel works.[84] Later when tea gardens, jute mills and other kinds of industry were started, the same commercial and financing houses aided and became agents for them. They and similar successors are now the managing agency firms which control the industry of that part of India. One of the most famous of these businesses was that of Messrs. Alexander and Co. which began about 1760 or 1770,[85] and was later chartered as "the Bank of Hindostan." It, together with the company to which it was attached, finally failed in the great crash of 1832. We have already seen that agency houses commonly accepted deposits. This custom apparently continued and in 1832 one of the partners of Messrs. Alexander and Co. distinguished his firm from the others, not by the fact that it alone did banking, but that it was the only one which issued

[83] *Parl. Papers*, 1831–32, X, Pt. II, App. 3, p. 496.
[84] See Chs. III, XII and XIII.
[85] See *Report of the Indian Central Banking Enquiry Committee*, 1931, I, Pt. 1, p. 16.

notes.[36] These notes were accepted everywhere in the neighborhood of Calcutta except at the government treasury and while the house had a high standing it was said to have utilized its note-issue to forward speculative trading.[37] As the companies owning these banks were interested largely in foreign trade the banks had much of their business in that field. Though also concerned with internal trade and industry they were unable to deprive the native bankers of their business. At least four such note-issuing banks had been in existence by 1832.[38] Two of these were separate from any commercial firm and one seems to have had some connection with the government. It was called the Bengal Bank though entirely separate from the later semi-official Bank of Bengal. The Bank of Bengal was formed under government guidance in 1809 while the Bengal Bank was in existence as early as 1784[39] and failed in 1792. The East India Company refused charters to these banks and undertook to monopolize the business in the bank in which it was interested.[40]

After 1832 the agency house banks ceased to be and joint-stock banks became more important. For the past century numerous banks have been started but the results, as the figures for present conditions already given show, have been very meagre. Between 1833 and 1846 eleven banks were formed, of which by 1862, five had already disappeared. As in America about the same time, many banks were speculative and poorly managed while a few were the victims of criminal dishonesty. The old mistake of furnishing fixed capital for industry on the basis of current deposits was also made here. Limited liability was introduced by Act VII of 1860, but had been applied in the case of the Bank of Bengal in 1830.[41]

The boom in Indian cotton, consequent upon the American Civil War, led to a speculative mania in Bombay between 1862 and 1865 which resulted in the formation and disappearance of some twenty-five banks with paid-up capital of Rs. 136,400,000 in Bombay alone.[42] By 1870 there were only two joint-stock banks

[36] *Parl. Papers*, 1831–32, X, Pt. I, p. 151.
[37] *Ibid.*, p. 52.
[38] *Ibid.*, p. 50.
[39] Sinha, *Early European Banking in India*, p. 6.
[40] *Parl. Papers*, 1831–32, X, Pt. II, Digest of Evidence, p. 479.
[41] *Parl. Papers*, 1831–32, X, Pt. II, Digest of Evidence, p. 479.
[42] Sir Dinshaw Wacha, *Premchund Roychund, His Early Life and Career*, Bombay, 1913, p. 65.

of more than Rs. 500,000 capital each in the country. Twenty years later there were only five, and fifteen years later still, in 1905, there were only nine.

About this time the *Swadeshi* movement began and a large number of new banks were established. By 1913 there were forty-one of these and new ones were being started constantly. Again the whirlwind was reaped. In the four years following 1913 eighty-seven banks with over half the total paid-up capital had failed. By 1926 the number of failures had reached 192, of which 64 were in the Punjab. While a portion of these failures were due to dishonesty and many to poor management, it must be remembered that these were trying times and in the most advanced modern countries, especially in the United States, there had been an epidemic of bank failures. Under the best of circumstances a country new to banking has a large casualty list; but in spite of the large losses Indians are demanding banking facilities.

These various banking enterprises have had comparatively little effect upon industry. The private bankers, by means of their position as local men of wealth, have furnished some funds for industrial enterprises. Their names have doubtless helped induce the public to buy shares and to deposit their surplus funds. The joint-stock banks have furnished some working capital, as has the Imperial Bank recently. But this aid has been limited to well-established concerns, managed by well-known persons.

Modern industrial banking has developed practically not at all. The principal institution was started in 1917 with the backing of the powerful house of Tata whose name it bore. But it fell a victim of the slump, lost half its capital, and was taken over by the Imperial Bank.

The large foreign trade of the country is almost wholly financed by the foreign exchange banks owned outside India, especially in the United Kingdom. A major criticism of the government's bank policy is that the lack of an Indian foreign exchange bank leaves this business in the hands of Britishers who in turn favor British merchants, thus keeping Indians out of this lucrative business.[48]

While the idea of coöperative finance is old to most oriental countries it was not widely applied to the main lines of business.

[48] See *Report of the Indian Central Banking Enquiry Committee*, 1931, I, Pt. I, Minute of Dissent by six members.

The first Coöperative Societies Act was adopted in India in 1904 and since that time there has been a fairly steady growth. It has had its chief success in agriculture but has made headway in communities of craftsmen, especially handloom weavers. In some cases smaller new businesses on modern lines have been assisted. About nine tenths of all the societies are agricultural and results have been decidedly encouraging.[44] Total funds available are already equal to about one twelfth the total rural indebtedness and are four fifths as large as the capital, reserves, deposits and cash balances of all the joint-stock (commercial) banks.

The government has taken a very active interest in this movement and besides providing careful supervision it furnishes a small monetary subsidy. Coöperative banking does not materially assist industry yet it bids fair to be the strongest influence which India has had towards the formation of the habit of saving for deposit, and therefore of a banking psychology.

Tariff. The Indian Government long followed England in a general policy of free trade with such duties as the exigencies of state finance would allow.

Under the Company, duties were charged on both imports and exports but were kept so low as to pay only for their administration. When the crown government came in, expenses increased and it was obliged to raise the duties on imports. These were still low but because of the opposition of British exporters they were soon practically removed. For a little more than a decade after 1882, trade was free except in the case of such goods as arms and spirits. For fiscal reasons, small duties were again imposed in 1892, extended in 1894, and again in 1896. When in 1896 a duty of 3½ per cent was placed on cotton textiles, the most important item, the government laid an equivalent excise tax on all cotton textiles manufactured in Indian mills. This remained in force until 1925, though after 1921 the import duty had been advanced while the excise duty remained at 3½ per cent.

The financial drains of the World War and the business situation following it compelled the government to utilize every means to increase its revenue. The general tariff was raised by degrees from five per cent in 1916 to 15 per cent in 1922. Whatever the theory,

[44] See an article by G. F. Strickland in the *Quarterly Journal of Economics*, May, 1929. Also *The Coöperative Movement in India; Its Relation to a Sound Policy*, by Eleanor M. Hough. P. S. King, London, 1932.

this gave real protection to a number of industries. The post-War nationalistic demand for protective tariffs for Indian manufactures found expression in the report of the Indian Industrial Commission which in 1919 recommended "energetic intervention in industrial affairs," [45] but received its greatest stimulus from the report of the Indian Fiscal Commission which reported in 1922.[46] At last when duties had already been raised so high, for purposes of revenue, as to result in a large measure of protection, the government agreed to "discriminating" protection, even requiring that companies receiving its benefits should be registered in India with rupee capital and have a certain proportion of their directors Indians. A tariff Board was appointed to advise the legislature.

Many inquiries have been made, and a few industries have been given protection, the most conspicuous being the steel industry which was even granted a liberal bounty on rails for several years. For instance, the rates on steel rails were, in 1930, from Rs. 13 ($4.68) to Rs. 37 ($13.32) per ton. The duty on galvanized sheets is Rs. 65 ($23.40) per ton.

Several other industries have been investigated and a few—among them matches—have received protection. Cotton manufacturers sought aid in this direction and though in 1927 the Tariff Board recommended a measure of protection and certain small bounties on high count yarns the government refused to vote them. In 1929 after prolonged depression, which affected severely the Bombay cotton industry, the rates on piece-goods were raised to 20 per cent, and specific rates, expected to reach 35 per cent, were levied against coarser yarns. This was aimed primarily at Japanese competition. In 1930 the cotton duties were advanced to 25 per cent and in 1933, under powers provided for the protection of industries, rates on non-British piece-goods—which effectively means Japanese goods—were raised to 75 per cent, ostensibly because of currency depreciation.

A preferential tariff for British goods has been mooted ever since the proposals of Joseph Chamberlain for an empire tariff were made about 1903. In that year, Lord Curzon's Government reported [47] that India stood mainly to lose by this arrangement. The Fiscal Commission of 1921 also considered the matter but showed little

[45] *Report*, Summary, p. 4.
[46] *Parl. Papers*, 1922, Session 2, II, Cmd. 1764.
[47] *Parl. Papers*, 1904, Cmd., 1931.

disposition to grant favors either to England or the other colonies.[48] Nevertheless, some measure of preference has crept into the most important schedules, especially those on iron and steel and cotton goods. The former class of goods has varying advantages, in several cases paying roughly two-thirds the rate charged on non-British goods. On cotton goods the government has recently proposed rates of 25 per cent on British and 50 per cent on non-British imports.

The tariff question is now very much to the fore in India. It is being recognized by most Indians and by a few Englishmen that such a country is greatly handicapped in competition with countries long industrialized and only the urgent demand on the part of the United Kingdom for markets can keep India from embarking on a thorough-going protectionist program.[49]

Business Organization. The organization of large-scale factory industry in India is peculiar in that a special arrangement for management of corporations—the managing agency system—is almost universally employed. Something akin to this system exists in other parts of the Orient to which European enterprise has gone. But generally it applies only to concerns operated by Europeans, whereas in India it has been adopted by nearly all Indian companies.

The system is somewhat as follows: when a company is formed, whether for starting a cotton mill, for operating a line of steamships, or for publishing a newspaper, it is agreed that some person or firm, generally the latter, will act as managing agent and take the principal responsibility for conducting the business. The managing agent usually has had much to do with the promotion of the company and has invested a considerable amount in it. Among other items the prospectus states that this person or firm is to be the managing agent on contract for a period, usually of twenty but sometimes thirty, even fifty years.[50] Usually two or three members of the agency firm are also members of the board of directors of the company. The agents therefore occupy such a dominating position that they usually formulate policies and carry them out while the board of directors merely gives assent to already accomplished facts.

[48] *Parl. Papers*, 1922, Session II, Cmd. 1764.

[49] See Ch. XIX.

[50] I have heard it stated that the contract is sometimes in perpetuity but do not know that this is true. The arrangements for dividing the agent's annual commission between parties often continue beyond the first generation.

The managing agents take full charge of the construction of buildings, purchase of machinery, securing of staff, conduct of operations and marketing. Usually they also take the leading part in finance. Generally the agent has considerable financial standing and is able either to furnish relatively large capital or to borrow it advantageously from such places as the London market. Commonly the managing agents have some other special merit besides financial power. In one Indian cotton mill the managing agents were expert mill men, but this is a marked exception.

These agents have received their remuneration in various ways. The original promoter of the first cotton mill in Bombay was made manager and received a commission of five per cent on the total value of yarn sold.[51] Usually there is a minimum guarantee per month or per annum with a commission based either on production or on profits. In the earlier days the "poundage" system was very popular. Under it commission was according to the pounds of material produced, for instance, one quarter-anna per pound of yarn. A few mills still continue this practice. A percentage on total sales has been given but the most common and the most esteemed method nowadays is a percentage of profits, generally ranging from 7½ to 12½ per cent, but most often ten per cent. There was a tendency to change during the boom period after the World War so as to allow the agents a larger share of war-time profits. The managing agents also receive other commissions on the cost of buildings, machinery, stores and insurance, but there is no fixed practice in this regard. Some also get a commission on sales.

A peculiarity of the agency is that it is heritable and salable although the permission of the board of directors must be secured in case of a contemplated sale. It is reliably stated that Rs. 300,000 were recently paid for the managing agency of a comparatively small cotton mill. Occasionally there have been unfortunate contests between different cliques for the agency. Sometimes the promoters reserve the managing agency to themselves and agree to divide the yearly commissions with others who furnish capital. This is usually on the basis of so many sixteenths, that is, of so many "annas in the rupee," of the commission. It is stated that the right to receive such share of the commission is also heritable

[51] Badshaw, *Life of Ranchorelal Chhotalal*, p. 19.

and perpetual. This has been frequent in Ahmedabad where capital was often collected in small amounts from several persons.

Managing agency firms are not restricted to the control of one factory or business but often carry on a number of enterprises of the same or different types. One firm manages about 120 different companies, having charge of some ten jute mills, several tea gardens, coal mines, flour mills, ships, etc. Of course in any country it is difficult for one concern to secure the undivided interest of able directors. Although the salary of the managing director may be sufficient to command his entire attention, he often carries responsibilities as a member of several boards.

In so far as business enterprises were started by British people, the managing agency system, at least in the early stages, apparently had distinct advantages. It is not so clear that these advantages remain today or that they have ever existed to the same extent for enterprises initiated by Indians. We have already seen that capital was gathered from a variety of sources, but mainly from persons, whether Indians or Europeans, without practical knowledge of the operations to be undertaken. It was important that someone should stand between the persons furnishing capital and the individuals using it. The European agency houses were widely known, already possessed a considerable capital, and, through their acquaintanceship both in India and Europe, were able to borrow. They were familiar with many aspects of the producing situation and with the prospects for marketing a great variety of goods. They were also in a position to judge of the reliability of the persons seeking capital. But perhaps most important of all, these agency firms were doing a continuous business and were therefore retaining in India some men familiar with the country and able to take responsibility. This worked to the advantage of both the agency firm and the individual enterprises. Supported by the various enterprises the agency house could maintain an able staff trained in the country. Efficiency and continuity of oversight were thus secured for the individual concern. As the managing agents extended their interests both to more concerns in the same line and to other lines, this became all the more true. Their special function came to consist in supervision. Much closer to finance and markets, the agents were able to supplement the work of the men in actual charge of operation. Not only was it necessary that such a central organization

should exist, it was also essential that it should have almost a free hand.

The system also effects other economies. For example, an office and certain receiving and entertaining facilities must be maintained in a certain center. This can be done more economically if one hundred different concerns in three or four different groups are handled by one organization. Equipment and staff can also be more economically secured. Closely related and of great importance are supplies and marketing where various advantages are gained by centralization.

In a new country there is a variety of special problems, many of which are essentially similar in different businesses. The legal machinery for handling the problems of one concern can readily be extended to several. The provision of land, the collection and administration of labor and the employment of European assistants are all special problems but once they are all well understood for one concern the same principles can as well be applied to a number. Where the different plants are of the same kind, say jute mills alone or coal mines alone, there is great economy in coördinating the tasks.

Where the system has been adopted by Indians the advantages are less obvious, although when only a few persons possessed financial resources and had mastered business technique there was reason for its use, but less for its continuance.

When administered with real business capacity and animated by loyalty, centralized control has been of great benefit; but many concerns have been poorly managed and some have been sadly mismanaged. A central system may afford greater opportunities for the juggling of accounts and orders, unfair purchasing of raw materials and equipment, crooked share-dealing, the subjugation in numerous ways of some one company's interest to another interest. A lawyer in Ahmedabad who has had very close relation to the textile industry stated before the Tariff Board: [52]

> My point is this. It is the defalcation of these agents, the bad management, the fraudulent management of these agents that has led to the depression in the industry . . . the Directors in the Ahmedabad Mills are mere dummies. They take no interest whatsoever except in signing the balance sheet. . . . Directors are called only once in the course of a year. When the balance is prepared they are called to sign. In no business of the concern are the Directors consulted. Even if the agent wanted to

[52] *Report of Indian Tariff Board, Cotton Textile Enquiry*, 1927, IV, p. 405.

make any extension, they are not consulted. Q. You mean that even when they spend lakhs of rupees for extensions, the directors are not consulted? A. Yes.

The shareholders' meetings are often summoned only to say "aye" to what has already been laid down by the agency firm. As an example, one firm advertised the half-yearly meetings of five large jute mills in five successive periods of five minutes each.[53] With such lax control the firm which sells the output of ten cotton or ten jute mills, in some of which it is a heavy stockholder and for some of which it is only the managing agent, must find the equitable distribution of business trying.

However necessary the managing agency system was for the building up of Indian industry, it has been expensive. An English factory inspector who spent some years officiating in Bombay Presidency after the passing of the first Factory Act in 1881 says:[54]

> The greatest curse to the trade is the abominable system so generally followed by the native mill agents of deducting a percentage for management on the *output*, whether the goods have been made to a profit or a loss. Added to this injustice he frequently charges a commission on all coal and mill stores. . . . Until this iniquitous system is abolished the cotton trade in India must always be subject to over-production. . . .

Several years later the system resulted in undue attention to the manufacture of coarse goods and to overstocking regardless of market conditions.

> It is not alone the shortness of the local staple which has kept manufacturers from experimenting in goods of the finer class. A strong inducement to adhere to the coarser goods can no doubt be traced in the financial arrangements of the majority of the mills whereby the agents are paid a fixed sum per pound of outturn. Coarse goods are produced far more rapidly than the finer counts and cloths, a fact of which the signification has by no means escaped the Agent's understanding.[55]

A member of a managing agency firm in Ahmedabad told the writer that they were drawing about one lakh of rupees (Rs. 100,000) per year for managing a concern capitalized for fifteen lakhs. In another textile mill the managing agents were drawing practically ten per cent on the investment for services which could have been performed equally well, and in many cases better, by the

[53] See notice in the *Statesman*, Calcutta, June 15, 1927.
[54] *Parl. Papers*, 1888, Cmd. 5328, p. 116.
[55] R. E. Enthoven, *Cotton Fabrics of the Bombay Presidency*, 1897, pp. 36–37.

manager himself. Another manager referred to the office of the managing agents as the "post office" of the company. Everything in the way of producing and of marketing was handled by the manager's office at the plant. Another concern is managed by a firm whose representative visits it two or three times a year. A very large house and spacious gardens are utilized primarily for his entertainment. The only service which this firm performs is the ordering of coal, upon which it receives a commission, after the various coals have been tested and the amounts required determined at the mill. During the first twenty-five years of the life of one mill, when there was much hard and discouraging work, the founder acted as manager and drew Rs. 2,000 per year for his services, which were worth vastly more. Upon retiring he recommended that his family firm be made managing agents, not for an indefinite period but during twelve years, and that the commission be not at the usual rate of 10 per cent of the net profits, but 5 per cent. After a number of years his successors in the family firm wavered in their support of his policies. The commission was raised to 10 per cent and in a boom year the agents received nearly a million and a half rupees.

The managing agent of a tiny factory which I visited was guaranteed Rs. 2,000 per month for office expenses, 2 per cent on the cost of all buildings and machinery, one per cent on the sale of all mill products and 14 per cent of the net profits. After two years under his management this weaving mill had installed twenty-three looms, twelve of which had actually produced cloth. The balance sheet for the last two of the first four years shows some interesting features. Apart from the expenditures on buildings and machinery and from income through the sale of shares, the outgo and income are shown in the table on page 171. Of particular interest is the large amount expended for what might be called "management" though the managing agent was being paid a heavy allowance for accomplishing practically nothing. Out of the total capital paid in by subscribers just under one third had been frittered away on current expenses.

According to the local historian of the Bombay Cotton Mills, who is himself a member of a large firm of managing agents,[56] the

[56] Mr. J. A. Wadia. See his evidence before the Tariff Board, *Cotton Textile Enquiry*, 1927, IV, p. 80.

Outgo	Rs. As. Ps.	Income	Rs. As. Ps.
Brought forward	9,259- 6- 4		
Office salaries and wages	3,865-12- 9	Transfer fees	1- 4-0
Rent	1,035- 0- 0	Sale of cloth	141-15-0
Printing and stationery	1,589- 9- 6	Stock on 31-3-24 as certified by Managing Agent: —	
Postage and telegrams	876-11- 3		
Managing agents' allowance Rs. 600 per month from 1st May 1922 to 31 March 1924	13,800-11- 3	Sample cloth at market price	2,342- 0-0
		Yarn at cost	2,051- 8-0
2% commission to the Managing Agents on machinery and building	1,513-10- 0		
Directors' fees	1,513-10- 0		
Audit fees	500- 0- 0		
Legal charges	550- 0- 0		
Traveling expenses	3,196-10- 9		
Accountancy charges	250- 0- 0		
Tonga (carriage) hire	749- 8-11		
Electric lighting	398- 1- 0		
General charges	796-14- 7		
Advertising expenses	281- 8- 0		
Interest on loans	311- 6- 6		
Boiler inspection fee	32- 0- 0		
Yarn purchased	4,470- 0-10		
Wages to workmen	1,885- 5- 6		
Stores, fuel, oil, etc.; consumed	751-14- 0		
Duty on cloth produced	51-13- 0		
Total	47,645- 4-11	Total	4,536-11-0

commission paid to their managing agents by the Bombay Cotton Mills averaged 5 1/5 per cent per annum on their paid-up capital during the twenty years 1905–25.[57] These payments are entirely apart from the salaries of the actual managers of the mills and from the dividends being paid to managing agents and others on the shares they own. It is also (supposedly) apart from any commissions the managing agents received for the purchase of stores, machinery, materials and so forth, or for the sale of products.

In 1925 one of the best cotton mills in India paid a dividend of slightly more than 14 per cent to its shareholders but paid to its managing agent a larger sum for his services. That is, it actually earned slightly over 28 per cent, half of which went to the managing agent. In the year 1924 one of the oldest cotton mills in India suffered a loss of Rs. 437,000 but the managing agents drew for their interest in the management a "poundage" of Rs. 438,000.

The Japanese have been wiser in their method of organization, keeping it closer and under better control. Yet they too have

[57] *Ibid.*, p. 73.

shown a strange willingness to allow a very large share of the earnings to go to the main leaders. These returns are not received as managing agents' fees but as bonuses voted by the board of directors.[58]

The old method of control and remuneration was taken over by Indians from the Europeans who were doing business in their country, and remains as a toll upon the main groups of Indian investors. There is now much talk of direct control by boards of directors but only a few companies have yet instituted it. Recently there was a move to form a gigantic trust among as many as possible of the Bombay cotton mills but it failed to materialize, largely because of the vested interests of managing agency firms.

There is some coöperation among persons engaged in the same or similar businesses in India, but usually it does not extend to combination. Business firms are exceedingly jealous, even suspicious, of one another. There are elaborate attempts at secrecy about everything, from wage rates to the quantities of raw materials in the warehouses. In a number of special fields there are associations of producers.[59] Among the most active are those in jute, cotton, tea and coal. The Indian jute mills association was organized about 1884 to cope with a bad case of over-production. It has remained in control of the European managing agency firms and has represented the trade before the government at various times, but perhaps its chief work has been to secure common action regarding short time and limitation of output. The Association sends two representatives to the Bengal Legislative Council. Just prior to the World War there was a movement to form all the jute companies into one huge trust but it was unsuccessful.

It has not been easy to keep all the jute manufacturers in line; there has often been division of opinion within the organization,

[58] Witness the 3 million yen ($1,500,000) recently presented to Mr. Sanji Muto upon his retirement from the presidency of the Kanegafuchi Spinning Company (*Shakai Seisaku Jiho,* May, 1930).

Mr. J. R. Geary, perhaps the leading non-Japanese businessman in that country, says: "We may easily examine the expenditures of many corporations of Japan and find hundreds of thousands of yen disbursed every six months from the treasuries of these companies for directors' and employees' bonuses, for presents made in reorganizations and consolidations of companies, and for gifts in the retirement of officials and employees; all of which extremely large payments are made not for any extraordinary or distinguished services rendered, but for services performed in the ordinary course of any business and in most cases entirely unwarranted." (*A Critical Survey of Industrial Japan,* Japan Times Press, 1926, p. 9.)

[59] See W. L. Cotton, *Handbook of Commercial Information for India,* Second Ed., Calcutta, 1924.

both as regards labor policy and as regards working time. Several of the new mills, erected at high cost since the War, have refused to join the Association or conform to its program for the limitation of hours and recently its existence has been in jeopardy.

There is also the Jute Balers Association, composed of jute balers, shippers, brokers and traders, which aims to standardize practices and contracts and to agitate generally for the good of this trade.

The most influential organization in the cotton industry is the Bombay Mill-owners Association. In this case, however, the field is not held by one alone, for Ahmedabad also has a strong association.

While the jute mills association is almost wholly in the hands of Scotsmen, both the cotton associations are controlled mainly by Indians. The cotton men have never attained as great a degree of coöperation as have the jute men. Since their industry is in no sense a monopoly, a shorter work day has not been feasible. Their action has been concerted only against some outside influence such as Japanese competition or the government's policies.

Both these associations are represented on the Provincial Legislative Council and the Ahmedabad group is also represented in the National Legislative Assembly.[60] They have been very active in bringing to the attention of the government matters affecting their interests. Indeed, they have perhaps been more active politically than economically. One important campaign was the long and bitter fight, finally won, for the repeal of the cotton excise duty. Other recent questions have had to do with the cotton exchange, the housing scheme, taxation, Japanese imports and rupee exchange.

In recent years both associations have had much to do with labor. Some of the earlier activities were against the passage of Factory Acts but the later ones have been more serious. It has been necessary for Bombay to meet a determined labor organization and overcome general strikes which stopped the mills as a whole, displayed a large amount of communist activity, and resulted in serious bloodshed. At Ahmedabad, conditions have been similar but not so serious. As stated elsewhere, the smaller labor group

[60] The Bombay Association has no representative in the Assembly, apparently because the interests of that community are represented by the Bombay (European) Chamber of Commerce and the Indian Merchants Chamber.

there has been organized into a very effectively disciplined labor union. The most constructive item in Bombay was the drawing up of standard rates of pay to apply in all mills of the district, but it was not put into operation, mainly because it failed to satisfy the workers. The Bombay Association has also organized a central selling organization which maintains display halls in various centers.[61]

The East India Cotton Association, described earlier, is an organization empowered by the government to regulate the trade in raw cotton which happens to be centralized at Bombay.

In the field of coal mining there are two associations. The larger and broader is the Indian Mining Association, founded in 1892 mainly by Europeans but to which a few Indian firms are attached. The Indian Mining Federation is limited to Indian firms. Its membership is larger but its influence is considerably less. Both organizations are represented in various public bodies in Bengal and Bihar and Orissa.

The Indian Tea Association dates from 1881. Besides studying political and commercial questions affecting the interests of its members, it conducts scientific experiments in tea growing and manufacturing. It is intrusted by the government with the expenditure of the "tea cess" of about one eighth cent per pound on all tea exported.[62] The money was first used for scientific research but since the loss of the Russian market it has been used in part for advertising. The American market has been tempting and large amounts have been spent in trying to secure it.

Important coöperative agencies for the promotion of business interests in general are the European Chambers of Commerce and the Indian Merchant Chambers, the most powerful of which is the Bengal Chamber of Commerce, made up perhaps wholly of European members. It was organized about 1834 and has been closely allied with all the economic activities of the British in Calcutta. It has been intrusted with many semi-public functions, such as the weighing and measuring of exports and the arbitration of disputes regarding shipments of goods. In 1924 there were twenty-two com-

[61] In part this is an attempt to capitalize the feeling against foreign cloth. The Indian National Congress Committee decided to boycott mills less than 75 per cent Indian-owned.

[62] When first levied, in 1903, this tax was about one third of this amount per pound.

mercial associations attached to the Bengal Chamber and recognized by it.[63]

The Bombay Chamber of Commerce is similarly constituted but owing to the smaller number of important British business men in that city, its influence is less. It also has a few Indian members. Both these Chambers send representatives to both their provincial Legislative Councils and to the central Council of State.

The Madras Chamber and the Upper India Chamber at Cawnpore are similar organizations but with a smaller membership and a lesser influence in the country.

Much less influential, but rapidly growing in importance, are the organizations of Indian business men, generally called Indian Merchant Chambers, the most important of which is that in Bombay. In the hands of very active Indians of all groups it has become more and more aggressive in behalf of Indian urban interests. There are two similar associations in Calcutta, the Bengal National Chamber of Commerce, dating from 1887, and the Marwari Association of Calcutta, 1898. The aims of the former have been more narrowly commercial while those of the latter extend to the social, moral and intellectual welfare of the Marwari community in Calcutta—a body of traders and money lenders.

These associations among Indians have been increasing rapidly both in numbers and in activity within the past few years. Both individuals and groups have attained a degree of self-confidence and self-assertion previously lacking in the entire Indian business community. Many able leaders are coming forward who are destined to play a large part not only in the economic but in the political and social future of their country.

[63] Cotton, *op. cit.*, p. 34.

CHAPTER IX

TRANSPORTATION AND MARKETS

In old Asia the few roads which existed were generally for political rather than economic purposes. In China good roads were provided for government dispatch carriers and in Japan the great feudal lords had fine solid roads over which to make their frequent journeys to the shogun's capital. But India had even less of such means of communication. Most of the people lived in isolated villages, and except for a few articles of small size and high value, such as drugs, silks and precious stones which are easily transportable, and a few bulkier commodities more universally used yet in small quantities, such as iron and salt, they were dependent almost entirely upon local produce. There was little specialization among communities and hence little movement of either goods or persons. Taking the crops from the fields, and a small share of these to nearby trading centers, was the chief movement of goods and this could be effected on the heads of men or the backs of animals. For the few longer distances and larger scale movements, bullock carts were used in the dry season. In a few regions, especially in Bengal, the many rivers and bayous connected with the mouths of the Ganges and the Bramaputra provided local and fairly long distance carriage by water. Also the Ganges and the Indus systems in the north and west, and the Kistna and the Godavari in the south, furnished access for small craft to parts of the interior. During Moghul times there were a few dirt roads connecting the local capitals, and the British did little road building until after they became rulers. A digest of evidence presented to the British Parliament in 1830–31 reads as follows: [1]

> It may be said that there are no roads or bridges whatsoever in the Madras territory. None exist beyond the town of Madras; the rivers are usually crossed on rude rafts of split bamboo and earthen pots. In Coimbatoor the roads are remarkably good; there are very few parts of India where they are so.

[1] *Parl. Papers*, 1831–32, X, Pt. II, App. No. 2, p. 472.

Private persons sometimes built roads from motives of philanthropy. "Two most magnificent bridges have been built across the Cavery by a native." [2]

The meagre attention devoted to means of transportation was due not only to the small amount of communication customary but also to the great difficulty of maintaining roads after they were built. "A road and a succession of bridges have frequently been washed away in one monsoon." [3]

Francis Buchanan speaks of a very fine south India road,[4] "excellent and fit for any kind of carriage, except in one place where, in the descent to a low narrow valley, stairs have been formed." He adds that the natives consider these "an excellent improvement on a road." This indicates that goods were being carried not on wheeled vehicles but on the backs of men or animals. Other evidence before Parliamentary committees mentioned roads being built "for beasts of burden." [5]

With the extension of their territories and the growing efficiency of transport facilities in the world at large, the British authorities concerned themselves with both external and internal communications. Lord Bentick, viceroy from 1828 to 1835, secured the building of the "Grand Trunk Road" between Calcutta and the Northwest provinces, which was later extended to Peshawar near the present northwest frontier. This highway, made famous by Kipling and mentioned by almost every writer on India, soon became a great institution. Over it passed every type of Indian person and equipage. About 60 feet wide, lined with trees over much of its length, it is kept in fair repair and is now a passably good motor road stretching for 1500 miles over the most fascinating plain in the world. A few other long distance roads were built by the British, the most important of which was the "Great Deccan Road" from Mirzapur on the Grand Trunk to Nagpur.

Foreign Communications. Along with internal communications, the British sought quicker and more direct communication with Europe. Steam navigation was then developing in Europe and America and in 1825–6 a steam vessel, the *Enterprise,* negotiated the long route between England and India by way of the Cape of Good

[2] *Ibid.*
[3] *Ibid.*
[4] Francis Buchanan, M.D., *Journey through Mysore, Canara and Malabar,* 1807, III, p. 104.
[5] *Parl. Papers,* 1831, Affairs of the East India Company, V, Appendix, p. 770.

Hope.[6] But the trip involved a heavy financial loss, owing to the inefficiency of the vessel and the great expense of refuelling. Furthermore, instead of covering the route in 60 days as its backers had expected, the ship took 113 days. The government of Bengal donated 20,000 rupees ($10,000) towards the encouragement of steam navigation, and the total amount raised there, largely from business houses, was some $50,000.[7] The Bombay community also raised a large sum.

As the Cape route seemed impractical, more attention was then given to the way through the eastern end of the Mediterranean. Various routes were surveyed but that through the Red Sea to Suez, thence overland to Alexandria, received most attention. From 1830 onward semi-successful voyages were made between Bombay and Suez, and a sharp rivalry between the Calcutta and Bombay communities developed over the backing of these enterprises. Meantime, the directors of the East India Company had been very loathe to encourage steam communication partly because they were short of funds but also perhaps because they sensed changes which did not augur well for their position of primacy in eastern affairs. However, Lord Bentick took a prominent part in securing steam communication. Though the feasibility of the Red Sea route, with overland carriage between Suez and Cairo, was demonstrated as early as 1830, not until about 1840 was there anything like regular sailings and regular through mail service. This was provided mainly by the Peninsular and Oriental Steamship Company.

From 1825 onward there were competing projects in the shape of proposed railways northwest from India to Europe, but these finally gave place to the water route and the Suez Canal was opened in 1868. This artery, cut by a French firm but always serving English rather than French interests,[8] assured easy, quick and regular communication between Europe and India. It took about two months less than the voyage around the Cape and cut the expense in half. This and the railways already built in India marked a great step in the economic revolution about to take place there.

The newly invented electric telegraph and ocean cable also did

[6] The story of the development of communication between England and India is well told in Hoskins, *British Routes to India*, Longmans Green & Co., 1928.

[7] Hoskins, *op. cit.*, p. 98.

[8] Even in the first years, 75 per cent of the traffic through the Canal was British, Hoskins, *op. cit.*, p. 372.

much to hasten economic changes in India. From 82 miles of line within India in 1851–2 the number increased to 4,500 miles by 1857.[9] These lines within the country gave great advantage to the government forces during the mutiny of 1857, but not until 40 days after the opening of hostilities did the news of it reach London. To guard against any such misfortune in the future, the matter of telegraphic communication in India and between India and England was then taken up with a will. The government itself built lines through India and spent much effort and money in the establishment of communication with England.[10] The first messages were sent in 1865 [11] but they involved so many relays and passage through so many countries—both European and Asiatic—which were neither familiar with the English language nor friendly to England, that much trouble was involved. Nevertheless the line was very popular and during the first five years the government of India derived annual profits of about $500,000 from its Persian Gulf cable.[12] By this time a route which was much less dependent on other countries was being completed. Cables were laid from England to Gibraltar, thence to Malta and Alexandria, overland only through Egypt, and finally from Suez to Aden and Bombay. This was far more satisfactory and soon became the great artery of communication not only with India but also with the Far East.

In spite of Indian conservatism, the use of the telegraph developed rapidly. In 1870–1 there were 66,000 private foreign and 472,000 private inland telegrams sent. By 1900–1 the inland messages were multiplied by ten and the foreign by thirteen. Now about 8000 private messages pass between India and foreign countries daily and within the country over 40,000 messages are exchanged. Like the transport facilities, these wires did more for commerce than for industry. They brought Indian commodities into touch with world markets, and apparently aided Europe in becoming the manufacturer for India, rather than India in becoming manufacturer for herself.

Present-Day Internal Communications. Local transport is still very primitive, in some cases almost unbelievably so. Back

[9] Hoskins, *op. cit.*, p. 374.

[10] The Government of India spent £800,000 on its line through the Persian Gulf only to have that line rendered comparatively obsolete a few years later by the Red Sea route. See Hoskins, *op. cit.*, p. 393.

[11] *Parl. Papers*, 1866, No. 428, pp. 187, 436.

[12] Hoskins, *op. cit.*, p. 389.

from the railways people still travel on mere by-paths, and millions of tons of agricultural commodities and other goods are carried to market on people's heads. A head-load averages about eighty pounds, but a strong man carries much more. Women cut bundles of sixty to seventy pounds and carry them during the night over distances of five to ten miles for the morning hay-markets in country towns. Heavy articles, like pianos, in the large cities are carried on the heads of a troop of half a dozen coolies.

Much other material is carried by pack animals. Bullocks, donkeys, camels, and occasionally horses are used for this purpose. A donkey will carry 150 pounds, and a bullock two or three times as much. But the bullock can haul on a good road, on a good cart, from five to eight times as much as he can carry. A transfer company owns and "operates" a herd of such animals rather than a "fleet" of trucks.

In level regions in dry weather, crude carts are much used, especially in the more progressive communities where roads have been improved. The increasing amounts of trade have led to the slight improvement of roads in some regions and have caused them to be recognized as desiderata nearly everywhere.

Trunk roads are also very inadequate; frequently there are toll charges, and in some parts of Madras, the cost of tolls is as great as that of gasolene and oil to a motorist. Even now there are only about 60,000 miles of so-called "metalled" roads. Generally, these are covered only thinly with a layer of *kankar*—that is, soil with a disproportionate amount of lime in it. This is less than one eighth the length of surfaced roads in the United States and only a very few of the Indian roads are better than ordinary gravelled roads in America. With the exception of a few streets in the large cities there are almost no paved roads in India.

Motor Transport. Motor transport is a small part of the whole but is rapidly growing. Europeans of all groups and many wealthier Indians do a great share of their local travelling by auto. Bombay and Calcutta have large numbers of motor taxis which operate at remarkably low rates, presumably because drivers' incomes are so low as compared to incomes in Europe or America. A few motor trucks are used by large business houses, but for general transport they are of no great advantage, because the heavy bullock traffic holds back the motors from realizing their normal speed. In the in-

terior, motor cars and busses are rapidly coming into favor. Between 1914 and 1927–8 the increase was from only a few cars to over 120,000, of which about one-sixth were motor trucks and busses, the latter being far more numerous. Over 15,000 motor cars were imported in 1927–8, five-eighths of which were from the United States and Canada. Busses now make regular trips between the larger towns and the important surrounding villages. Indeed so popular has this mode of travel become, that rate-cutting and financial difficulty are heavy upon it. The few country roads that exist are being badly damaged, especially during the rains, because their surfaces are too soft for these heavy vehicles. The motor busses are a great convenience for the village people and are an important agency of progress, but it will probably be a long time before the Indian people can afford really good roads for them.

It has been urged that the government should consider the provision of roads and railways as one problem and steps are being taken to improve the roads, though it is a very great task, not least on account of the many great rivers whose monsoon torrents are nearly impossible to bridge. A Road Development Committee has been formed and an additional tax of two *annas* (4½¢) per gallon levied on gasolene to provide funds. Little has been accomplished but a beginning is being made.

A century ago, when new means of transport were being discussed, canals and rivers were not left entirely unconsidered. Some very elaborate surveys were made and several canals, mainly for irrigation, but occasionally for transport, or for both, were built, even as early as 1830. In 1928–9, of the more than 4,000 miles of canals, for the most part of minor use for navigation, the major portion was in Madras, Bengal and Burma. Some 16,000,000 tons of freight were carried on them in that year as compared with 86,000,000 tons on railways.[13] They are chiefly important in the carriage of jute and rice.

Railways. It was the new railway system which revolutionized the economic life of India. Isolated villages and towns suddenly found themselves on the world's highway. The same trains which offered to carry agricultural produce away to market brought the cheaper products of the power factories to compete with the cruder output of hereditary craftsmen. Farmers found specialization, the

[13] *Indian Statistical Abstract* for 1928. In 1928–9 this latter figure was 114,000,000.

sale of farm produce and the purchase of power manufactures, more economical than the customary support of craftsmen and menials and it became necessary for these latter to accept reduced incomes or go elsewhere. Although many people were scores of miles from the railways, they introduced exchange, money and competition in place of self-sufficiency, status and customary incomes in kind. Instead of a secure position within the village and caste organizations, individuals were forced into the most strenuous outside rivalry. The new wine of competition in the dried skin of the old social order threatened to burst it.

Railways first appeared in England about 1825 but they were still experimental and did not seem practical for India. By the 1840's, and just on the heels of the program of road-building already described, railways for India began to be discussed. The Company authorities were skeptical, fearing the difficulties of both construction and maintenance and doubting if business would warrant railways. There was little internal commerce, foreign trade was small and it was thought that the people, because of poverty and conservatism, would not use a passenger service. Engineers, however, were reassuring as to the expense and the deteriorating effects of floods and of tropical plant and animal life upon the properties. The Board of Directors finally became more courageous than the investors and the East India Company's government guaranteed a five per cent return on the capital required to build a few railways.[14] The government was also to furnish all the land needed for 99 years, the railways to carry the mails free of charge and troops and military stores at reduced rates. By giving six months' notice the companies might require the government to take over the roads at a price equal to the actual money spent. The government, on the other hand, had the right to such purchase at the end of twenty-five-year periods. It was also to share in any profits above the guaranteed interest.

The first agreements were signed in 1849, and by 1853 two short lines, one out from Bombay and one from Calcutta to the Bengal coal-fields, were opened. In that year the Viceroy, Lord Dalhousie, wrote his famous "minute" pointing out the great social, political and commercial advantages to be gained from connecting the three Presidency cities—and these with the northwest frontier—by rail.

[14] A similar plan was being applied in France at the same time.

The mutiny of 1857 greatly strengthened the military argument and by 1859 contracts had been made with eight companies for some 5,000 miles of railroad.[15]

While the early railways greatly improved the political, military and commercial situation they were not financially successful. Unlike the American roads which were built ahead of settlement, the Indian railways tapped densely populated areas. Yet they had to wait for the development of business. Since earnings were guaranteed, the builders laid down expensive lines such as had been built in England, rather than such as were being built on the American plains. Instead of £8,000 per mile as calculated, the cost of the roads in operation in 1868 rose to £18,000 per mile.[16] Some of the new roads in the United States were built, including the cost of land, for as little as $10,000 (£2,000) per mile.[17] This difference was due to the lack of skilled labor in India, the necessity of shipping materials from England, and the much better roads built; but the guaranteed rate of interest encouraged the heavy expenditure of capital. Overhead and operating expenses on these roads far exceeded income and the government paid the difference.

As private building of railways had been so expensive and as interest rates were then lower, it was decided, during the 1870's, to try state construction. Mounting general expenses and the fall in the value of the silver rupee brought the government into financial difficulties and caused an unfortunate concession to economy—the adoption of a narrow gauge instead of the earlier broad gauge. Since almost exactly half the railway mileage is now narrow gauge and of five different widths, trans-shipments are very frequent. Some of the richest regions in the country are served by narrow gauge only and none of these extends to an Indian port.[18] Cheap roads of one standard gauge would have been far more useful to the country.

The Famine Commission of 1880 was much impressed by the part railways had played in reducing famines and urged further construction. In order to hasten building, it was decided to return to the guarantee system, though at lower interest rates. Between 1880 and 1890 mileage was nearly doubled. This growth continued

[15] *Indian Year Book*, 1926, p. 597.

[16] Jenks, *The Migration of British Capital*, 1927, p. 222. A figure of £17,000 per mile down to 1870 is given by Weld, *India's Demand for Transportation*, p. 67.

[17] Johnson, E. R., *American Railway Transportation*, p. 80.

[18] See *The Round Table*, 1924–25, pp. 530–31

without marked incident until 1900 when the main trunk lines connecting the chief ports and the leading centers were completed. In 1900 there were 25,000 miles of line open. Since then, nearly 15,000 miles, mainly branch and connecting lines, have been built. As compared to one mile for each 12 square miles of territory in the United States, and for each 13.5 square miles in Japan, India has one mile of railway to each 47 square miles. Per 10,000 population, the United States has 23.6 miles of railway, Great Britain, 5.5 and British India 1.2 miles. In 1931 India had just over 42,000 miles of railway. It was outdone in total mileage only by the United States and Russia, but Canada is a close rival.

Much has been made of the earlier losses on the guaranteed lines. These payments were heavy, but it was inevitable that these early railways should lose money. The good roads built have made for safety and possibly were economical in the long run. The government's losses were for some time very great—over $250,000,000 up to 1900,[19] when the net annual deficit was first turned into a gain.[20] Since then, the early losses have been more than cancelled by surplus earnings.[21] The capital invested draws interest at an average rate of about 3¾ per cent while the earnings in the 20 years ending 1926–7 averaged 5.8 per cent. But a portion of the rather large sums now paid by the railways into the state treasury must be set against replacements which were much neglected during the War period.[22] The Acworth Committee of 1919 was severe in its criticism of this policy, "which has been persistently pursued of starving the Indian Railways" by taking these returns for general government expenses.[23] The failure to separate the general financial account from the railway accounts has been a real shortcoming.

Management. The railways built by companies with government-guaranteed earnings have all been purchased by the government as their contracts matured. The East India Railway was taken over in 1880 and the Great Indian Peninsula in 1900. Most of them are being paid for in small annual instalments. The government of India owns about two-thirds of the total mileage, and ex-

[19] *Report of the Acworth Committee on East Indian Railways, Parl. Papers,* 1921, Cmd. 1512, par. 189.

[20] Excepting the one year 1877–8 which showed a gain of nearly half a million sterling.

[21] See *Indian Statistical Abstract.*

[22] *Acworth Report,* par. 68.

[23] *Ibid.,* par. 63.

ercises some degree of control over all but about 5,000 miles of the total. It operates about half its holdings, and lets the balance to British companies having offices in London. The members of the Acworth Committee, sitting in 1921, disagreed on the question of state versus company management of the state lines, but it advised against operation by companies domiciled in the United Kingdom. The Indian members generally favored state, and the European members company management. The government is opposed to state management and has been endeavoring to work out a scheme of operation by companies located in India. Several of the Indian states have constructed railways within their territories and some operate their own lines. Generally, however, these lines are operated by the large companies and are integrated with larger systems.

Among Indians there has been much criticism of the government's railway policy. In the early days many were altogether opposed to railways while others desired, and still demand, their further extension. It was also objected that construction was too expensive, especially in the earlier period. There have been mistakes, but on the whole a very good job has been done and the railways have been the principal agency for economic and social change. Given the task of governing, it was impossible to avoid military and famine considerations when building. As in other aspects of Indian administration, the motives of imperialism, both economic and political, have been mingled with those of sound government and even philanthropy. Commercial considerations have had much weight and the strongest criticism which can be offered is that there was no definite aim, as in Germany and Japan, of internal industrial development. As in other matters of general policy, the commercial interests of the United Kingdom tended somewhat to blind officials to the real needs of India. But this has been by no means a scandal and, considering the needs of the country, Indian railways have been conservatively and efficiently operated. Also, in spite of the pedantic way in which the problem of so vast a railway system has been handled, there has been in the higher railway management freedom from such evils as fraudulent stock issues, stock watering, rebates, reorganizations, cut-throat competition and the corruption of legislatures and courts, experienced in the United States. As in a great many other respects, the classically educated young men who administered Indian affairs

did very well. Honesty makes up for a multitude of other shortcomings.

The railways give employment, in various ways, to about three quarters of a million persons. The higher posts have been mainly in the hands of Europeans though an increasing number of Indians and Anglo-Indians have been employed. Less than one per cent are now Europeans and less than two per cent Anglo-Indians. This means that the process of "Indianization" so sought for in political and economic life is being achieved; but there is still much complaint of discrimination against Indians in matters of promotion and salary. There is no such discipline or service as in Japan and the system operates only fairly successfully. Many Indians and Anglo-Indians are loyal and efficient workers and were it not for the unfortunate racial animosities involved they would provide material for a good railway personnel.

Railway Rates. As compared to rates prevailing in the United States, Japan, and Europe, Indian freight and passenger rates—especially the latter—have been fairly low, owing chiefly to the poor service rendered. Recently it has even been claimed that Indian railway charges are the lowest in the world and this is probably true of passenger fares. In 1925, first-class fare, which is about equal to Pullman travel in the United States, was roughly 3.75 cents per mile, compared with 2.94 cents for train fare alone in the United States. Second class was 1.86 cents. Fares have been lowered a little but third class fares are still only about two thirds of a cent per mile.

Freight rates have been the subject of much complaint, especially by Indian business men. Exception has been taken to the cheaper rates from the ports—for example, from Bombay to Calcutta or Delhi, for the encouragement of through trade. The claim is that imports of foreign manufactures have thus been encouraged to the disadvantage of India's own industry. This has been the result, yet the policy was consistent with the viewpoint of the railway. This business was definitely developing and responded to encouragement. The only ground for complaint is upon the assumption, which is quite natural, that Indian manufacturers had a right to favor from the national railways. This, in any systematic way, they surely have not received. Partly because of their unwillingness to wait and partly because of their concern for British

interests, railway authorities have paid little attention to Indian industrialization.

In 1880 long-distance freight rates were higher than in the United States, where one ton of wheat could be hauled 450 miles for $2.50; the same mileage in India cost $5.50.[24] But in recent years average charges per ton-mile of freight have not varied widely from those in the United States. In 1925, average freight charges were 1.125 cents per ton-mile in India, and 1.14 cents in the United States. The service, however, is not equal, for there are few sidings to factories and a large proportion of the goods must be hauled long distances before or after loading. The facilities for protection of goods in terminals are often very poor, thus adding damages to the actual cost of transportation.

Service. There has been much criticism of the freight service provided. During the War, the shortage of freight cars was particularly acute, but criticism of this kind is perennial. It is often asserted that only by giving bribes can a shipper secure "wagons" when he wants them. The Acworth Committee says of this matter: [25]

> According to the immemorial custom of the East, inferiors, after the manner of Joseph's brethren who went down to Egypt, when they come into the presence of their superiors bring presents in their hands. Accordingly, it seems to have been usual in India, when the trader applied at a railway station for the use of a wagon, to pay some small fee, 8 annas (8d.) or Rs. 1 (1s. 4d.). In recent years the supply of wagons being utterly inadequate to meet the demand—owing, like all the physical deficiencies of the Indian Railways, to lack of funds—these small fees have grown to portentous dimensions. Evidence all over India has been given to us on the subject. Payments of Rs. 50 or Rs. 100 are apparently common. Rs. 200 have been mentioned more than once. In one case we were told—and we see no reason to disbelieve the evidence—that Rs. 800 (say 50 guineas) were actually paid, to obtain a single wagon at a time when prices were fluctuating wildly and when consequently heavy damages were liable to be incurred for non-fulfilment of contract. . . . The matter is of serious importance. The feeling aroused is not merely one of resentment. One witness told us straight out that the reason the practice was not stopped was that the bribes do not stick to the hands of the subordinate to whom they are paid, but percolate much higher up through the railway service. It is most unfortunate that suspicions of this kind—and, however unjustifiable, they are as much to be expected as to be deplored—should be allowed to exist. The bitter feeling is not lessened

[24] *Report on the Working of the Indian Railways for 1879–80*, p. 37.
[25] *Report, Parl. Papers*, 1921, Cmd., 1512, pp. 53–4.

by the fact that powerful European firms are believed to get without payment treatment at least as good as that which Indian traders say they can only get by bribery. We impute no blame, nor indeed did the Indian witnesses, to the European firms. Whether the reason of the distinction, which apparently does exist, is that subordinate officials dare not submit important Europeans to the treatment which they venture to mete out to their less influential fellow countrymen, we cannot say.

Another Occidental who has been long in India and who cannot be accused of hostility to British controlled projects says: [26]

Where it [the haul] is fifty miles or more, the railway should be able to drive the bullock out of business. How is it it does not do so? The reason probably is that the railway gives such a poor service. Then there is delay in supplying wagons and in hauling the material after the wagons have been loaded, and the losses shippers incur through theft and gross carelessness for which the railway refuses to accept responsibility. The legal charges of the railway are reasonable, but the illegal exactions by the railway staff are a heavy handicap on business. The shipper usually has to pay a bribe. The warehouse facilities are also very poor. At the beginning of the rains, one frequently sees large quantities of grain lying soaked and practically spoilt on open platforms waiting for shipment. Unless a shipper pays extra to get a proper supply of wagons, he may be ruined. The legitimate revenue of the railway is curtailed by this sort of thing, but the loss is invariably passed on to the producer.

A part of this trouble arises from the red-tape required for a company in London to operate a railway in India. It is also bound up with the problem of welding two races into an effective staff and in securing real coöperation in any such bi-racial arrangement as exists in India. Like so many aspects of Indian administration, it looks well on paper but in practice it is something different.

Effects of Improved Communications. The building of such highways as the Grand Trunk Road by the British had considerable effect upon the neighboring villages and towns, facilitating the movement of goods over greater distances and doubtless increasing both internal and external trade. But these roads touched too small a portion of the country and left the means of transport too poor and expensive to cause anything approaching an economic revolution.

The same holds true of the small amount of work done on canals. Unlike such countries as England, Holland and Germany, India does not lend itself readily to the use of canals. In certain sections, especially in Bengal and Madras, canals aided commerce,

[26] *The Round Table*, 1924–5, p. 530.

but by the time a demand for more efficient transport arrived in India, it could be met by railways. Not until their advent did the transport facilities effect any far-reaching change. Besides facilitating military and governmental operations, they also made possible for the first time the formation of contacts and relationships, social, political and economic, between the different parts of India and between India and the outer world. The farmer raised a specialized crop which was sold to London, and bought in his railway town for cash, Manchester and Birmingham goods. Instead of giving grain to families of workers for their customary services at certain seasons of the year, the farmer began to hire laborers for wages. Freed for long periods, and able to remain away permanently if they liked, these customary laborers began trailing away to seek wages in the building of railways and canals, the mining of coal or the working of new Indian factories. Many migrated to Malaysia, Ceylon, Africa, even to South America. The armour of the isolated, self-sufficient village was pierced by the steel rail, and its life blood ebbed away. In some fields, such as land-ownership and tenancy, the blow to the village economy came from the new English laws, but in the main it came because the railways made exchange and competition economical.

If investors and others were doubtful as to the response which Indians would make to railways, they were soon comforted. The operating report for 1879–80 states with some surprise that Indians take to travel just as Europeans do. "The smallest reduction (in fares) at once increases, and the smallest addition at once diminishes, the number of travellers." [27] The number of passengers rose to 48,000,000 by 1880, 114,000,000 by 1890 and 176,000,000 by 1900. In the next decade it increased to 371,500,000; by 1920 it was 520,000,000 and in 1928–9, 648,000,000. In 49 years there was thus a thirteen fold increase. The common people of India travel, 96 per cent of the passengers being of the lowest or third class. The results of this great amount of travel by the Indian masses can scarcely be over-estimated.

Not only did the people begin to travel, they began to send goods of all sorts by freight. A short line carried one fourth of the cotton crop of Berar during its first season. It cost only from two to three cents per ton-mile to carry cotton in 1862 while the charges by

[27] *Report on the Working of the Indian Railways*, 1879–80, p. 38.

bullock were six to seven cents. Furthermore the added dirt and damage by bullock haul increased this charge to nine cents.[28] This quartering of transport charges now made possible the regular export of cotton and other agricultural products from the interior. Traffic on the railways rose markedly, as shown by the following figures:

RAILROAD FREIGHT CARRIED

YEARS	MILLION TONS
1873	4.75
1880	10.5
1890	22.25
1900	43
1905	54
1910	65
1914–15	81
1919–20	87.6
1924–25	77.8
1926–27	85.8
1928–29	119.8
1930–31	110.6

Much of this was internal shipment but a great deal was the movement of foreign trade goods, both exports and imports. The figures for foreign trade, including treasure, also grew apace, showing that specialization had a marked international aspect.

FOREIGN TRADE OF BRITISH INDIA *

(Including treasure)
(In thousands of rupees)

DECENNIAL AVERAGE	IMPORTS	EXPORTS
1835–36 to 1844–45	97,200	137,384
1845–46 to 1854–55	140,567	187,560
1855–56 to 1864–65	374,320	394,361
1865–66 to 1874–75	447,928	566,124
1875–76 to 1884–85	575,406	744,964
1885–86 to 1894–95	832,670	1,026,637
1895–96 to 1904–05	1,057,050	1,309,636
1905–06 to 1914–15	1,797,194	2,052,676
1917–18 to 1926–27 †	3,147,110	3,261,208
1921–22 to 1930–31 †	2,915,055	3,296,726

* *Statistics of British India*, 1922, p. 129.
† *Statistical Abstract of British India.*

These figures are of course affected by the great rise in prices during the last twenty years of this period and the growth has been

[28] *Ibid.*, 1861–2, p. 24.

proportionately less than in some countries, such as Germany. Yet the gain, down to 1915, omitting the exceptional years of the American Civil War, was of an order roughly similar to the growth of foreign commerce in the United States. The growth of internal traffic was incomparably less than in the United States but there is no doubt that the new transport facilities were effecting a great revolution. The value of coastal shipping trade, moreover, increased threefold between 1895–6 and 1924–5.

Likewise there was a great development of foreign shipping, especially after the opening of the Suez Canal in 1869. Ships clearing from India and passing through the Suez Canal were as follows: [29]

Years	Ships Cleared	
	No.	Tons.
1871–72	208	229,416
1874–75	409	558,076
1879–80	556	829,667
1884–85	923	1,553,446
1889–90	931	1,723,597
1894–95	903	1,980,900

Thus in less than 25 years the tonnage of ships clearing from India for Europe increased nearly ninefold. All these figures indicate an enormous broadening of the market for some kinds of Indian goods. Indian communities were exchanging with each other and India as a whole was exchanging with the world.

It was not only with Europe that the foreign trade was increasing. While much over half the total trade (tonnage) was with Europe and in many years that share with the United Kingdom alone, there was much trade with Ceylon, the Straits Settlements, China and Africa. Opium, raw cotton and cotton manufactures were going to China and a great many products of the craft shops were going to natives and Indian emmigrants in Africa and the Malay States.

The new means of communication were important factors in the development of markets for certain Indian goods. For a long period, they were rather a disadvantage than otherwise to manu-

[29] *Statistical Abstract of British India*, 1885–1895.

facturing. They opened other countries, especially in Europe, as markets for Indian agricultural produce, and opened India to European manufacturers. In spite of the keen competition of American wheat and cotton, Indian raw materials found a good market in Europe. Unfortunately for India's all-round economic development, her agricultural exports, rather than her manufactures, were encouraged by these conditions. If farm produce was to be sold, something must be accepted in payment. Although India has steadily imported large amounts of bullion, this has not paid the bill. Besides paying her various charges for borrowed capital and for British administration, India's agricultural exports have provided a large balance which was paid in manufactured imports. Much of this was in British capital such as materials for railway construction and equipment; but another and more important item was the large amount of consumer's goods, especially cotton cloth manufactured in Lancashire from cotton grown in America. This was the largest item in the country's imports and for a long time far exceeded the cloth made in India. The able and experienced industrialists of England were in a much better position—given Indian free trade—to supply the newly opened market than was any group in India. The new means of transport and communication brought about economic specialization in agriculture and largely substituted factory for handicraft goods; but for many decades most of the factory goods came from outside India, and were made by European labor and capital rather than by Indian.

Yet a certain amount of Indian manufacturing profited from these new facilities. Through better foreign shipping, jute manufacture obtained greatly widened markets for its produce. The railways made possible the assembling of raw cotton and coal and the shipment of products to the interior distributing centers, though they also brought deadly competition from abroad. Indian mills not only provided great quantities of coarse yarn to the Indian hand-looms, but also took over a certain share of the coarse power-woven cloth business of the country. Besides this home trade, the railways to Bombay and the shipping lines from Bombay made possible the growth of cotton mills in that city and a great sale of yarn to China and other points east. While some Indian textile goods had been exported before these revolutionary developments in

transport, cheap carriage greatly enlarged the scale. But exports constituted a small proportion of the whole of Indian manufactures. Cotton yarn and a few piece-goods were sold to China but even at the peak their value was small in comparison with the amounts of raw cotton exported. Jute manufactures were exported to Europe, America and various parts of Asia, but not until about the time of the World War did they equal the exports of raw jute. During the entire period, 1875–1914, the largest items in India's exports were raw materials, including raw jute and raw cotton, opium, grains and seeds.

Improved transport, both external and internal, started a revolution in Indian economic and social life; but it came from the outside and found the Indians unprepared. If with it had come protection to the Indian market, it would have provided a great stimulus to Indian manufacturing. While improved transport was a *sine qua non* of the growth of manufacturing in the country, it was accompanied by such a combination of conditions—free trade and competition with other countries already far advanced in industry—as to develop European rather than Indian industry.

The struggle is by no means over, but now that the home market has been partly reserved for Indian manufacturers, the railways will be a tremendous boon. With the exception of jute, the main task of Indian industry in the near future is not to capture outside markets but to regain those inside. The growth of transport and manufacturing efficiency, together with her present measure of protection, should make this possible to a great degree.

However, competition has become both sharper, and from a wider front. The more efficient European manufacturers could be checked because of the higher standards of living and wages prevailing in Europe. But now the severest rivalry is that from India's oriental neighbors, China and Japan, where wages are still low though the efficiency of their machine processes now rivals that of Europe and America. India needs some degree of protection to guard her industries for a time; but for final efficiency she needs the stimulus of just such rivalry.

CHAPTER X

COTTON AND COTTON MANUFACTURING

COTTON cloth today is a simple and cheap commodity, which gives little evidence of its great significance in the history of India and in the relations between the Orient and the Occident. While Europeans have long clothed themselves mainly in animal fibers, chiefly in wool, Indians early developed the art of making clothing from this vegetable fiber, and perfecting it to a remarkable degree. At least as early as 445 B.C. cotton was the usual clothing.[1] It is said that the "woven wind" of Dacca was made of counts above 400 and that a *sari* large enough for a full-grown woman could be drawn through an ordinary finger ring. Together with precious stones, spices and silks, cotton cloth was one of the products which appealed strongly to Europeans after their first main contact with the East in the Crusades. The desire to trade in these commodities set all the nations to searching for a new route to India when the way through the eastern end of the Mediterranean was finally closed. Later, cotton yarn was carried to Europe, to be woven there, and finally the industry was revolutionized by power machinery. Cotton was grown and ginned in America and a great occidental industry came back to crush the parent from which it sprang. One of the principal reasons for England's assumption and retention of political control over India has been to provide a market for Lancashire cloth; and competition in cotton, the new power industry against the old hand trade, and the efficient English mills against the younger mills of India, has been the focal point for much of the criticism which Indians have aimed at their occidental

[1] "They possess likewise a kind of plant which, instead of fruit, produces wool of a finer and better quality than that of sheep; of this the Indians make their clothes." (Herodotus III, c. 106.) Similar evidence is contained in the report of Marchus, an Admiral of Alexander the Great, who descended the Indus in 327 B.C. Some assert that cotton is mentioned in the writings of Manu, 800 B.C. See R. B. Handy, U.S. Dept. of Agriculture, Bulletin 33, 1896, and also Wacha, *Journal of the Society of Arts*, Londor., LXVI, p. 544, but it appears that this is not certain. See A. N. Gulati and A. J. Turner, *A Note on the Early History of Cotton*, in Bulletin No. 17, of the Indian Central Cotton Committee, Oct. 1928, pp. 1–2.

rulers. For India, cotton manufacture is ancient glory, past and present tribulation, but always hope.

While the Indian cotton industry has an ancient and honored history, this appears to have been based upon excellence of workmanship, rather than upon quality of raw material. The finest products were doubtless made from raw staple of the very highest quality; but as a whole, Indian cotton was of low grade.

Ever since the beginnings of the modern British cotton manufacturing industry, the Government of India has attempted to improve and increase the production of Indian cotton so as to be able to supply Lancashire. As early as 1788 the British manufacturers were urging the East India Company to furnish them good cotton for their rising industry. The Company did its best to comply, but, in spite of everything, Indian cotton never became popular in England. American cotton, especially after the invention of the cotton gin in 1793, crowded the Indian product out. From that time until the American Civil War, Indian shipments to England remained relatively insignificant. Even during that war, when the price was quadrupled and quintupled, India failed to furnish a satisfactory supply to Lancashire. Both quality and output per acre remain low. Whereas the United States cotton crop yields some 200 pounds of cleaned cotton per acre, and the Egyptian crop some 450 pounds, the Indian crop yields, on the average, only slightly over 100 pounds.

But hope springs eternal, and in 1917 the Indian Government appointed a Cotton Committee to inquire again into the possibility of producing long staple cotton. The Committee's findings were by no means encouraging. It reported that "India cannot, for at least ten years, grow cotton in any large commercial quantity of a staple longer than 1 1/16 inch. Up to this length, we think Madras might furnish 500,000 bales and the Punjab, 200,000 bales, but these cottons will only be capable of spinning up to 34s twist and 44s weft in the Lancashire mills, if the conditions in those mills continue as at present." [2] After nearly ten years even this faint hope was not realized. In 1926 some 6 per cent of the total crop was long staple and the Indian Central Cotton Committee gave no hope that more could be produced, even in favorable years.[3] But by 1932 some

[2] *Report of the Indian Cotton Committee*, 1919, p. 5.
[3] *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, p. 259.

progress had been made and in that year 18 per cent of the total crop was capable of classification as long staple. In spite, however, of recent slow improvement, the two following statements, the first made in 1861 and the second in 1918, still hold true.

For upwards of half a century Government have desired and have endeavored to promote the improvement of Indian cotton. During this period the hope that India might ultimately replace the United States, as the source of cotton supply, has vaguely existed in Great Britain, rising into eagerness in moments of distress, and sinking into indifference on the return of abundance. For upwards of half a century Indian cotton has occupied the unsatisfactory position of a mere *pis-aller* for the American growth, reluctantly purchased when the latter has been dear, and instantly abandoned when it has become cheap . . . there is no reason to suppose that the present appetite for Indian cotton will survive the American blockade, or that the present demand is less fickle than that which preceded it.[4]

The history of cotton in India is the history of tragedy. India is one of the homes of cotton. In India were grown, in early days, cottons so fine that they have never been replaced. Yet in modern times Indian cotton has become a by-word of reproach. The cotton is generally only used for the lowest purpose and hardly at all in this country.[5]

Although it makes such a poor showing in international markets, Indian cotton has provided fairly good raw material for the considerable Indian industry. Indeed, it is chiefly from Indian cotton, mixed with a percentage of American or Egyptian, that Japan, in the past twenty-five years, has built up an industry whose goods are now being sold in the shops of Manchester.

In length of staple, Indian cotton ranks with Russian and Chinese, at the bottom of the list. Some qualities are as short as ⅜ inch and practically none is longer than ⅞ inch. It is classified as ⅜ to ¾ inch in length while American short-staple upland has an average length of about one inch.[6] Most of the Indian fiber is at present unfit for spinning yarns finer than 30s count, while American cotton may be used for 40s or finer and Sea Island may be used for 300s.[7] The Indian mills are coming to use very small amounts of imported longer staple cottons in the production of the

[4] Cassels, *Cotton in the Bombay Presidency*, pp. 345–6.

[5] McConnel, Chairman of the Empire Cotton Growing Corporation, in Departmental Reports for the Textile Trades, 1918. Quoted by Wood and Wilmore *Romance of the Cotton Industry in England*, p. 248.

[6] Wheeler, *International Trade in Cotton*, p. 13.

[7] *Bombay Cotton Annual*, 1926, p. 248.

finer counts to which they are being forced by the competition of Lancashire and Japan. Most of this comes from Egypt and Uganda, but some comes from America, notably in years when the American crop is large and the price low. The facilities for importing raw cotton involve considerable expense and trouble. Since 1925, for instance, fumigation charges have amounted to Rs. 3–6–0 ($1.22) per bale in the dry season and Rs. 4–14–0 ($1.78) in the rainy season.[8] A leading Japanese cotton man regards these costs as a great handicap, but the Bombay mill-owners made little of them in their recent representations to the Tariff Board. The Bombay mills have on the other hand a considerable natural advantage in importing cotton, as the freight charges from American Gulf ports are practically equal to those paid by Osaka, while from Egypt the haul is shorter than for any other country selling in the oriental market.

Besides being of short staple, Indian cotton is very dirty. Often growing on short stalks close to the ground, wind storms cover it with dust. The small farmer sometimes finds that pickers who are paid by weight may contribute a further share, and since dirty cotton weighs more than clean, he adds still more.

Cotton is also sometimes watered in order to make pressing easier and to increase the weight. I have seen evidence of this in only a few places but the Indian Industrial Commission says that,[9] " . . . it is done on a large scale and in a thoroughly organized manner, pipes and hoses being used for that purpose in many press compounds, especially in Berar." The cotton then becomes stained and there is danger of spontaneous combustion.

Another evil practice has been to mix lower with higher qualities. As cotton has been sold by the name of the station from which it was shipped, poor cottons were often hauled or even shipped by rail to higher rating stations either to be mixed or shipped out as they came in. In 1923 the Government passed the Cotton Transport Act which makes it illegal to carry cotton from certain areas to others.

In the cotton-growing regions a considerable amount of cotton comes into the mills in loose bales and in several cases a gin is operated in connection with the mill. In earlier days this was more com-

[8] *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, p. 198.
[9] *Report of the Indian Industrial Commission*, 1919, Appendix B, p. 36.

mon. Many mills in the cities own or rent ginning plants in the growing regions and buy, gin and press their supply in season and hold it over for manufacture during the year. Others simply buy cotton in season and hire it ginned and pressed and sent to their warehouses. This makes manufacturing highly speculative, especially in years such as those since the War when marked changes in cotton prices have taken place. Some of the very worst crashes in the mill industry have been due to this and other unnecessary speculation in cotton.

About half of the total cotton crop is consumed in India, and of this, half is taken by the Bombay mills. Bombay has now become the chief cotton market of Asia. A picture dated about 1811 shows the market on the ground near the old Town Hall and the cathedral in the background.[10] In 1844 this space became so congested that the market was moved to Colaba at the southern end of the Island, where it remained until 1925. Before 1875 there was no association for the control of the trade [11] and until 1919 there was no adequate controlling organization.

There is now a well-equipped exchange building, housing an organization for hedging, of which the Bombay mills take only slight advantage. Until a very few years ago no prices were called out in public; bids and quotations were made in secret. This is still the practice in the jute market in Calcutta and in many of the up-country cotton markets; the two negotiators put their hands under a cloth and rupees are indicated by the number of fingers, while annas are expressed by the number of joints touched. Now there is a cotton "pit" whose commotion rivals those in the Occident. The dealers make pencil entries in their memorandum books at the time of the transaction and after business has closed they compare books and initial each other's entries. The following day proper contracts are duly signed. Hundreds of thousands of rupees' worth of business is done in this way with no more tendency to dishonesty than would be found in western countries.

The conflicting interests and ideas of the great variety of persons engaged in the raw cotton business in Bombay are not easily reconcilable. Many manufacturers and traders are fully aware of every trading device used in western countries and generally

[10] In 1813 the residents complained that the sale of cotton spoiled the appearance of the green. Sir Dinsha Wacha's *Recollections of Bombay*, p. 327.

[11] Booklet issued at opening of East Indian Cotton Association in 1925, p. 11.

recognize their utility. But many who were connected with the trade under former conditions distinctly prefer the old secretive methods. Far from wishing to call from the housetops the prices they will accept or pay, these dealers prefer to get behind a tree and whisper or pass signals under the folds of a garment.[12] This is only another instance of the great range of conditions to be found in India. Her best educated people are not one whit behind Occidentals, but some of those who are in control of very great business interests represent a more primitive point of view. For decades they stood adamant against every effort to introduce a modern cotton market.

The contracts are not so simple or so easily settled as those made in New York and Liverpool. There, all American cotton may be dealt with under one specification, "middling," and any American cotton may be offered in settlement of a contract to furnish other American cotton. But in India the variety of qualities dealt in are covered under five separate contracts (of which only three have been in actual use) and only cotton of a particular group may be offered in fulfillment of a contract. Furthermore, the amount of cotton belonging to one of these groups is so small that the uncertainty of the monsoon makes its market very speculative.

To this ancient industry, the factory system has been successfully applied and India is now one of the leading cotton manufacturing countries of the world. She ranks fifth in number of spindles, fourth in quantity of raw cotton consumed, third in number of persons employed,[13] and second in raw cotton production. Besides about 380,000 employed in cotton mills, there are 140,000 in ginning and pressing of raw cotton and a very large number (possibly two million) engaged on hand-looms of which there are some two million in the country. If the cotton industry is chosen as the leading example of factory development in India, it is not because the cotton mills are by any means superior to the jute mills, but because they have been developed largely by Indians, while the jute mills owe their success to Scottish enterprise, management and technique. The cotton mills have employed and still employ a large number of

[12] *Indian Central Cotton Committee Report*, 1926, pp. 26–7. "Great exception is taken to the system of secret bids and all growers urged that in cotton markets all bids should be open and the rates properly announced."

[13] See League of Nations, *Memorandum on Cotton*, 1927, pp. 9, 21, 37.

Englishmen as technicians, heads of departments and managers. Yet the laborers, most of the owners, and the majority of technicians and heads of departments are now Indians.

It would be a little strange if this industry had not developed in India. One of the early habitats of raw cotton, the country now produces about one-fifth of the world's annual supply, ranking second only to the United States; it has an abundant supply of laborers, whose ancestors have been familiar with cotton fibers for centuries, and has within her own borders and in her neighboring countries the world's chief market for cotton cloth. England's success in cotton manufacture, despite the necessity of transporting both the raw material and the finished products long distances, was an example to Indian enterprise. Indian capitalists desired to emulate Lancashire, and some Manchester men chose India, under the protection of the British army and British courts, rather than Lancashire as a field for operations.

The chief development of cotton manufacturing has been in the west, centering in Bombay Presidency, especially in Bombay City. Here most of the raw cotton is produced and here manufacturing skill has become most wide-spread. Persons of British birth have been mainly responsible for the growth of plantation industries and for coal and jute working in Bengal; but native Indians, headed by the *sometime* immigrant Parsees, have developed cotton manufacturing.

We have already seen how, about 1850, the European factory system and its auxiliaries became sufficiently developed and coördinated to be transplanted to the Orient. By 1861 eight mills were working in Bombay with 190,000 spindles and 2,587 looms; Broach had 20,000 and Ahmedabad, 4,000 spindles.[14] Growth was irregular until about 1900. By this time, the total number of mills in the country was 193 with over 5,000,000 spindles,[15] of which 82 were in Bombay City and Island. While the number of Bombay mills has remained the same during the last thirty years, their equipment has increased by nearly 50 per cent in spindles and by nearly 350 per cent in looms. After 1900 there was a five-year period of inactivity, due to plague and famine, and to some extent to the new currency regulations, which brought India's price level into line with

[14] Cassels, *Cotton in the Bombay Presidency*, pp. 344–5.
[15] See Ch. V. for a more detailed account of this growth.

the gold standard countries, while her principal market, China, was on a silver basis.

Between 1905 and 1910 there was another boom followed by a period of steady growth until the outbreak of the World War, when there were 271 mills in the country with nearly 6,800,000 spindles and 104,000 looms. During the War it was not possible to build new mills; spindlage remained constant, but looms increased. In 1921 the numbers of mills and spindles were actually less than in 1914, while looms were more by about 20 per cent. With the post-War prosperity there was a new burst of growth, the number of mills reaching 334 in 1929, while spindles increased by 38 per cent and looms by 68 per cent.

COTTON MILLS AND EQUIPMENT IN INDIA, 1929 AND 1931

	No. of Mills	No. of Spindles	No. of Looms	Average No. of Hands Employed Daily
In the Island and City of Bombay only	81	3,447,433	76,375	106,710
In the Bombay Pres. other than those in the Island and City of Bombay	130	2,503,765	56,332	107,505
In the whole of India, 1929 .	334	8,807,064	174,922	346,925
In the whole of India, 1931 * .	339	9,311,953	182,429	395,475

* Of the total number, 312 mills were working; 27 mills were not working, and 24 mills were in course of erection. The spindles and looms in course of erection are not included. *Report of the Indian Tariff Board regarding the Grant of Protection to the Cotton Textile Industry*, 1932, p. 221.

Outside Bombay City and Island the chief centers of the industry in the Presidency are Ahmedabad and Sholapur. Other centers, in other parts of the country, are Cawnpore, Calcutta and Madras. Important mills are scattered in other provincial towns such as Agra, Nagpur and Madura. In the earlier decades Bombay was an advantageous location because the mills produced only yarn and sent the major portion to China for consumption on hand-looms.[16] Raw cotton was detained in its principal port only long enough for spinning and was then exported as yarn. In fact, most of the early mills were built by Parsee yarn and cloth merchants already concerned with the supplying of the Chinese and African markets.[17]

[16] In 1888 three fourths of the yarn produced in India was exported to China. See Meade King's Report in *Parl. Papers*, 1888, Cmd. 5328, p. 123.

[17] The Petits, for instance, were guarantee brokers for European importers and were interested independently in trade to various foreign markets.

As some manufacturers early gave more attention to the home market, they moved closer to it and the source of raw materials; such, for example, are the mills at Broach and Ahmedabad, and the two famous mills started in Nagpur by Tata and in Sholapur by Morarji Goculdas in 1877, which had marked advantages also in cheap labor. In these factory locations the principal items in workers' expenses, rent and food supplies, were especially cheap, but the climate was a drawback. Cotton fibers work best in a moist climate. While not so regular as that of Manchester, Osaka or Nagoya, the Bombay climate is moist and the short fibers of the Indian cotton are more easily manipulated there than in most up-country places which, except in the monsoon, are always very dry. Means have been devised, however, to overcome this disadvantage to a considerable extent without much extra expense, and the dryer climate is less exhausting for the laborer. With the relatively greater attention recently devoted to the home market, the up-country mills have generally been the more prosperous.

While very well off so far as raw cotton is concerned, the West of India has been unfortunate in the matter of power, because the principal coal deposits are in the northeast. Either a very long train haul or a shorter train haul plus a very long sea voyage from Calcutta, around the peninsula, to Bombay was necessary. In 1926, freight on coal from Bengal to Ahmedabad was more than double the original cost of the coal. In the early days of the mills, before the Suez Canal was opened, and even before there was much coal mining in Bengal, this difficulty was avoided by burning wood. Later, coal was imported from England, and more recently from Africa, but from all these places a long and expensive haul is involved. Some up-country mills have secured coal from nearer fields of poor coal and others have had a distinct advantage in being situated closer to Bengal.

The late Mr. Jamsetji Tata conceived a great hydro-electric scheme for Bombay which has been carried out by his sons and successors. Water from monsoon rains is collected on the hills, some 2,000 feet above Bombay and some fifty miles distant. Ranging from 175 to 400 inches, the rainfall provides for the long, dry three quarters of a year to follow. About 90 per cent of the Bombay cotton mills are now supplied with electric power, which is clean and reliable, but even more expensive than coal. With the equip-

ment used, one ton of coal is calculated to be the equivalent of from 600 to 800 kilowatt hours of electricity, which is delivered to most mills at a cost of .725 anna per unit, or Rs. 31.72 for 700 units. A few mills which made earlier contracts pay only two thirds of this price, but even this lower rate is somewhat above the Bombay cost of power from Bengal coal. Electricity is provided to mills in Japan at rates corresponding to from .32 to .54 annas per unit [18] and in the United States at about .64 anna.[19] Electrical power is therefore relatively expensive for the Bombay mills. A few mills use fuel oil. There has also been a great hydro-electric development in Mysore State and some of its power is being furnished to cotton mills at a low rate.

The equipment of the mills is good. "Taken as a whole, the mills in India compare favorably as regards building construction, modern machinery, and up-to-date labor-saving devices, with the mills in Lancashire." [20] Building materials vary with the district, but are usually brick or stone. In view of their newness, the plants are a little old-fashioned, but it is doubtful whether any other country, except the United States and Japan, has better mills. Many of the up-country mills have been laid out to fit the pocketbooks and the cautious ambition of the group of local residents who formed the companies, men usually lacking in knowledge of the business and too anxious to economize. Small mills have been added to, a lean-to at a time, forming a mass of buildings which house machinery but are ill-adapted for the continuous operations of a factory. Yet a few new up-country mills, especially at Ahmedabad, are as fine as could be built.

Even in Bombay the mills have been built on lines laid down by Manchester for an entirely different set of conditions, rather than planned to suit the requirements of India. The typical mill, a big structure of three or four stories, in which everything but the weaving is done, has great disadvantages in the Indian climate. To provide a textile mill with abundant light is very important but in India the direct rays of the sun must be avoided, the light evenly distributed, and good ventilation assured. These features are well provided for in a mill which has but one story. The saw-tooth roof

[18] *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, p. 132.
[19] *United States Commerce Year Book*, 1929, p. 291.
[20] Report of an investigation made on behalf of the British United Textile Factory Workers' Association, 1926, *Conditions in the Textile Industry of India*, p. 4.

may be so built as to allow only indirect northern light evenly to all the machines in the amount required with the minimum of heat. Heated air rises and escapes at the peak. In a mill of several stories, however, it is impossible to light all the machines equally well, and in a large room, the tendency to give as much window space on the sides as possible, in order to provide even moderate visibility in the center or darker portions of the room, lets in a flood of direct sunlight. This increases the temperature and gives a much poorer light than the saw-tooth roof. Because of the wide roof, such a room is also difficult to ventilate properly. Moreover, one of the two best methods of cooling and humidifying, by sprinkling water on the mill roof, can be effective only in a one-story building. Tall buildings might be explained in some cases by the high price of land. In Bombay it is doubtful whether the advantages to be gained from a single-floor mill would always out-weigh the extra cost of land. But often sufficient land is lying idle in the compound to admit of more scientific construction. Scientifically planned structures are more commonly found in the up-country centers, but even here the old-fashioned mill of many stories predominates.

Machinery. The mills have been fitted with good machinery from British makers. Almost the only American machine seen is the Universal winding machine, which is as ubiquitous in the mills as the Singer sewing machine in the bazaars. In earlier days, a would-be manufacturer commonly purchased worn-out and antiquated second-hand machinery. In 1888 it was reported: [21]

> Many native speculators, with no conception of spinning, but with wild ideas of the fortunes to be made . . . will buy worn out frames by all manner of makers, filling their rooms with machines which will hardly turn, and soon come to grief.

Also in the choice of machinery, there has been a too slavish following of Lancashire which uses principally mule spindles because it specializes on fine count yarns. American mills produce lower count yarns and early took to the ring spindle which is much better suited not only to that type of work, but also to laborers of low skill. Moreover, its product is something like 40 per cent greater.[22]

[21] Factory Inspector, Meade King, in *Report of the Chief Inspector of Factories & Workshops in Great Britain*, 1888, p. 116.

[22] See Copeland, *The Cotton Manufacturing Industry of the United States*, p. 68, n. 1. Reference to Nasmith's *Recent Cotton Mill Construction*.

But although India was producing much coarser yarns than America, she stuck to the mule spindle much longer. As early as 1860 the American mills had as many ring spindles as mule spindles [23] but no rings were set up in India until, after another quarter of a century, Jamsetji Tata installed them in his mill at Nagpur.[24]

Indian mills have also held to plain looms, generally two to a weaver, but in a few instances only one.[25] Whereas in the United States most looms are automatic, only since the World War have they come into common use in other countries. Germany and France have used them for some time and England and Japan have taken them up recently. Only a few mills in India have used them at all, but one of the best mills in the country is now almost fully equipped with them [26] and others are experimenting. In this respect too the Indians have followed too slavishly the practices of Lancashire. With the wide variety of high-grade fabrics produced in Lancashire and the large number of highly skilled weavers at reasonable wages, it was perhaps good economy, before the World War, to continue the use of plain looms; but in India, where many coarse, cheap and plain goods were being woven, there was no such justification.

Other labor-saving equipment, such as the simple hand knotter which ties knots more quickly and more smoothly than can be done by hand, is not widely used in India. Drawing in of warps is almost always done by the tedious hand methods rather than by the machine method employed in the United States and in Japan. In the past the Indian practice has perhaps not been uneconomical; but, as in many other lines of business, labor efficiency has not improved with the rise of wages.

There is great variety in the care which machinery has received. Cotton machinery has been so standardized that its care is no longer difficult to learn. Credit for the excellent maintenance of many mills should go to the Lancashire men serving as managers, heads of departments and machine superintendents. But many Indians,

[23] *Ibid.*, p. 66.

[24] *Empress Mills Golden Jubilee Book*, p. 23. Once these spindles were introduced, however, they soon became popular. In 1888 the factory inspector reported that "Ring throstles are very popular and several large concerns have filled their spinning rooms with these frames." *Parl. Papers*, 1888, Cmd. 5328, p. 115.

[25] In Japan the number of plain looms to a weaver varies from two to twelve, of automatic twenty to sixty.

[26] The Binny Mills in Madras were operating in 1930, 2750 automatic and 150 plain looms. Arno S. Pearse, *The Cotton Industry of India*, 1930, p. 158.

especially Parsees, have gone to England for training and several of the best mills are now successfully operated by purely Indian staffs.

A few mills are badly antiquated and many Indian captains of industry have not yet learned to discard old machinery. Jamsetji Tata practiced this economy in 1886 when he purchased the big mill at Curla, now the Swadeshi, which had a conglomerate mass of machinery, operated by several steam engines and using 23 boilers.[27] The mill's business had been wound up four times in twenty years. Tata literally threw the old machinery out of the windows, and replaced it by more modern and uniform types, arranged in proper succession. There remain some few of the present owners who should follow his example.

Transport to and from the mills is not efficiently arranged. Few mills have railway sidings. Until recently when the new cotton exchange was opened at Sewri, all the cotton for the Bombay mills had to be carted by bullocks, usually over a distance of from two to five miles, to the mills. In like manner the bales of yarn and cloth are still carted to the stations or docks for shipment. As already stated, it is generally impractical to utilize motor trucks because the bullock cart sets the pace for the narrow street traffic.

Capital Invested. A larger amount of capital is invested in cotton than in any other Indian factory industry. Whereas foreign capital—nearly all British—has dominated in coal mining, railway building and in the manufacture of jute, it has had only a small place in cotton manufacture. One of the best informed cotton men in India says that 99 per cent of its capital is Indian owned. In 1921, of 345 cotton mills, only nine were entirely owned by Europeans and Anglo-Indians as against 322 entirely owned by Indians.[28] This capital, after a start with money made in the opium, yarn and cloth trade in China and in the great cotton boom during the American Civil War, has been collected from small investors and saved from the profits of earlier mills.

Construction expenses have been fairly reasonable, building being moderately cheap in India. Good shipping facilities and almost negligible customs duties on machinery also helped to keep down expenses. Yet in the beginning Indian mills were much more

[27] Rutnagur, *Bombay Industries, The Cotton Mills*, p. 27.
[28] *Census of India*, 1921, I, Part II, p. 302.

expensive than those built in western countries. In 1878 it was calculated that a mill in India cost three times as much as in England, or about $15 per spindle.[29] This is not true at present. Figures for the Bombay mills in 1913 show a paid up capital of only Rs. 23.24 ($7.75) per spindle.[30] The figure for Ahmedabad Mills in 1918 was only Rs. 16.90 ($5.63).[31] In 1912 the average book values per spindle of twelve New England mills was $8.98 though it was said they could not be newly constructed for less than $15 to $20 per spindle and that additional funds for working capital would bring the investment up to $30 per spindle.[32] Japanese mills appear to have cost much more, partly because they utilize much land and housing for their workers, and also because they are of more recent construction. In the middle of 1914 the figure for Japan was $17.21 per spindle.[33]

In all countries, costs for new mills and capitalization of many old mills advanced during the War and post-War boom. The Japanese showed the greatest increase mainly because of the great rise in prices there and also because of the much greater increase in new equipment. By 1920 Japan's capitalization per spindle had nearly doubled—to $33.63.[34] It was estimated in 1921 that a new mill would cost per spindle, $32 in England, $40 in the United States and $60 in Japan.[35] In 1927 Indian mill men placed this figure at $36 for India and it is doubtless much less now.

The capitalization of Indian mills also showed a great advance at the end of the World War. There was, for example, an advance of 53 per cent in average capitalization per spindle in the Bombay cotton mills between 1918 and 1925.[36] But the great change in capitalization came not from increased costs of construction but from sales and resales and recapitalizations to accord with boom-time earnings. The Indian Tariff Board gives a list of twelve

[29] *Statement of the Trade of British India, 1877–78* quoted in *Statement of Bombay Millowners' Association to the Indian Tariff Board*, 1926, p. 3.

[30] J. A. Wadia, in *Times of India*, Dec. 23, 1926.

[31] *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, p. 82.

[32] See Copeland, *The Cotton Manufacturing Industry of the United States*, pp. 262–3.

[33] U.S. Tariff Commission, *The Japanese Cotton Industry and Trade*, 1921, p. 91.

[34] *Ibid.* See also *Report of the Indian Tariff Board, Cotton Textile Enquiry.*

[35] U.S. Tariff Commission, *op. cit.*, p. 90. This calculation seems high. Obviously much depends upon the particular site chosen because a chief item is the large amount of land used in Japan. In a great city this is expensive, but in a country village it is reasonably cheap.

[36] *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, II, p. 14.

mills whose capital was increased by over twelve times in the five years, 1918–23, though their equipment was increased by only one-half.[37] In more conservative Ahmedabad the advance was only 14 per cent in the same period. The average capitalization per spindle has been substantially reduced in Bombay since 1926.

There are wide variations among the mills and among the agencies. The agency having the largest number of mills under its control showed in 1927, for all its mills, a capitalization of Rs. 140 per spindle. Another mill with more looms per spindle shows a capitalization of only Rs. 17 per spindle or less than one-eighth as much. The total capital invested in Indian cotton mills is about Rs. 800,000,000 or $300,000,000.[38] In 1919 it was estimated that additional borrowed working capital used in the industry as a whole was Rs. 100,000,000.[39]

Profits. Cotton mill profits have shown great variation although on the whole they have been fairly satisfactory. The first mill in Bombay paid no dividend during the first two years but then paid back half the capital in one year.[40] In the eighties some mills returned all the capital in the first four years.[41] The Empress Mills at Nagpur paid an average of 16.4 per cent during its first twenty-five years.

In 1908 a Bombay mill-owner objected to accepting a 3 per cent return from investment in workers' houses "when they could obtain 25 per cent in other directions." For twelve years preceding the World War and including one or two early War years the Bombay mills, besides paying agents' commissions and depreciation, averaged 11 or 12 per cent on the investment.[42] War and post-War profits were high and for the 21 years ending 1925 the gross profits of the Bombay mills, before agents' commissions and depreciation were deducted, averaged 38.8 per cent.[43]

[37] *Ibid.*, p. 77.

[38] *Bombay Labour Gazette*, March, 1934.

[39] Sir Dinshaw Wacha, in *Journal of the Royal Society of Arts*, July 19, 1918, p. 554.

[40] Badshah, *Life of Rao Bahadur Ranchorelal Chotalal, C.I.E.* p. 19.

[41] Inspector Meade King, in *Parl. Papers*, 1888, *cmd.*, 5328, p. 116.

[42] Mr. J. A. Wadia, in *Indian Industrial Commission, Evidence*, IV, p. 140.

[43] Calculated from figures given in an article by Mr. J. A. Wadia in the *Times of India* for Dec. 1926. Mr. Wadia described his connection with the Cotton Manufacturing Industry before the Tariff Board in 1926, as follows:

"I have been connected with the industry for the last 40 years. I have been a promoter and am now the controller of about 13,000 looms out of the 71,000 in Bombay.—I am a Director." *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, IV, p. 80.

An examination of the balance sheets of the Bombay mills shows that for 1920, 35 companies comprising 42 mills declared dividends of 40 per cent and over, of which 10 companies comprising 14 mills paid 100 per cent and over and two mills paid over 200 per cent. In 1921, the number was 41 companies comprising 47 mills, out of which 9 companies comprising 11 mills paid dividends of 100 per cent and over. In 1922, it fell to 29 companies comprising 34 mills of which 4 paid dividends of 100 per cent and over and in 1923 only 7 mills paid dividends of 40 per cent and over.[44]

During the recent long depression, the best equipped and managed mills have continued to earn fair profits. With the greater attention to sale at home, some of the up-country mills have made handsome returns. A large mill in Sholapur has paid during the past few years the following dividends: [45]

DIVIDENDS OF A SHOLAPUR COTTON MILL

YEAR	DIVIDEND	YEAR	DIVIDEND	YEAR	DIVIDEND	YEAR	DIVIDEND
1916	42½	1921	200	1925	100	1929	35
1917	100	1922	250	1926	70	1930	6
1919 *	52	1923	200	1927	52½	1931	6
1920	115	1924	120	1928	52½	1932	6

* For 15 months Dec. 1917 to Mar. 1919.

During 1927, twenty representative "up-country" mills earned gross profits of 26 per cent as against 12 per cent earned by 42 companies in Bombay City.[46]

The booklet issued on the occasion of the Golden Jubilee of the Empress Mills at Nagpur, in 1927, contains the following statement as to its profits:

The dividends of the first twenty years show an average of close upon 16 per cent, and in the period preceding the boom which followed the World War the return to the shareholders averaged 23 per cent. During the boom period the profits were sufficient to justify an average dividend of over 90 per cent. It was Mr. Tata's ambition that the Empress Mills should pay a dividend of 100 per cent. Though this sum was not reached till after his death, the fact that it was at length attained is sufficient to

[44] *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, I, p. 83. Of course *rates* of dividend mean very little apart from capitalization; but capitalization was much higher, perhaps twice as high, in the later than in the earlier period.

[45] *Investor's Indian Year Book*, 1926–27, p. 168. Supplemented by reliable newspaper reports for later years.

[46] *Indian Textile Journal*, Sept. 1928, p. 388.

show how successfully the firm has carried on the traditions of its founder. In 1919 the dividends on each ordinary share of Rs. 500 were Rs. 350; but in 1922 they rose again to Rs. 525 though the mills were working under great difficulties for there was a shortage of water in the Jumma Tank and the Dyeing and Bleaching Departments practically stopped work. In 1923 despite depression in the textile trade and the trouble of strikes, the dividends paid amounted to Rs. 280 on each ordinary share.

The original holders who had received bonus shares upon which the same dividends were paid could in 1920 reckon their actual dividend to be 488 per cent. And on the record profits made during the same year the Mills paid the Government the large sum of Rs. 2,700,000 as Tax (Income-tax, Super-tax and Excess Profits Duty).

In general, it is interesting to note that the total profits of the Empress Mills up to the 30th June, 1926, aggregate over Rs. 92,214,527 which is nearly 61.47 times the original ordinary share capital; and up to the same date the company has paid Rs. 59,431,267 in dividends on ordinary shares which works out to 80.86 per cent per annum on the originally subscribed capital of Rs. 1,500,000, while on the amount of Rs. 4,687,500 which has been the total paid up capital since July, 1901, the dividends since that year totaling Rs. 50,109,375 come to 42.76 per cent. The original shareholder has consequently gained, by being the first fortunate allottee of a share of the paid up value of Rs. 500 in the Company, 2.05 shares given him gratis worth to him Rs. 7,838[47] on the basis of the present market value of Rs. 514 for a share of the paid-up value of Rs. 100, and it has brought him Rs. 19,810 in the shape of dividends.[48]

These are unusual mills, started in favorable locations, at a fortunate time, under good management. Some mills, less fortunate, have fallen prey to such catastrophes as famine, plague and the exchange dislocations which sometimes disturb the Indian market. Others have suffered from speculation and poor management. But a fair proportion of mill properties have been well managed and have returned good earnings to their investors.

Mill Management. In the early history of the industry nearly all mill managers and heads of departments were Lancashire men and in a large number of mills this is true today. This importation of mechanics and managers is quite natural when a country adopts a new industrial process not native to it, and was followed for a shorter period by both Germany and Japan. Undoubtedly, these men

[47] There appears to be a very slight error in the figure.

[48] *The Empress Mills, Nagpur, Golden Jubilee,* 1877–1927, pp. 90–93. This mill's dividends have since been, in percentages, for 1927, 30, for 1928, 28, for 1929, 26, for 1930, 24.

have contributed much to the success which has been attained. Even as early as 1887 the transfer to Indian management was beginning. A careful observer said[49]: "The largest mill-owner [of Bombay] is a Parsee millionaire, Sir Dinshaw Maneckjee Petit; he runs seven mills, all well-managed, many of them superintended without the aid of any European foreman." For several years lately a European mill under the control of an old and highly respected firm of European managing agents was very efficiently managed by a Parsee.

Mill direction is gradually passing into the hands of Indians. In 1895, of the managers, mechanical engineers and carding, spinning, and weaving masters in Bombay mills, 42.4 per cent were Europeans.[50] In 1921, for India as a whole, 34.6 per cent of the managers were Europeans.[51] By 1925 this percentage was only 28.4. Where Europeans are employed they usually fill the higher posts. Of the Indians in these positions in the Bombay mills in 1925, just over 50 per cent were Parsees, 17 per cent were Hindus, 3 per cent were Jews and 1.5 per cent were Mohammedans.[52]

Some of the mill management is good, but some is as wretchedly poor as could be imagined. Mills with a good deal of Lancashire influence are generally the better but there are poor mills even among these. The up-country mills are generally, but by no means always, less well managed than those in Bombay. I found the machinery of an Indian-owned and managed mill in Calcutta literally covered with dirt and fluff, making the spinning of good yarn impossible, while two mills in Ahmedabad, one British-managed and one Indian-managed, always looked like the exhibitions of machine manufacturers.

The cotton mills are less well managed than the jute mills partly because the European influence is less. In a cotton mill there may be only one European over a force of 6,000 hands, all his foremen and heads of departments being Indians. Under such conditions an able Indian manager can sometimes accomplish more single-handed than a European because he can secure better coöperation

[49] Inspector Meade King in *Annual Report of the Chief Inspector of Factories and Workshops* (in Great Britain) for 1887, *Parl. Papers*, 1888, *Cmd.*, 5328, p. 116.

[50] Rutnagur, *Bombay Industries, the Cotton Mills*, p. 294.

[51] *Census of India*, 1921, I, Pt. II, p. 254.

[52] Rutnagur, *op. cit.* The Parsees thus predominate in mill management as well as in ownership. Outstanding Parsee managers, some of whom became wealthy owners are the late Mr. Nowrosjee Wadia, the late Sir Bezouji Mehta and Sir Sorabji Mehta, present manager of the Empress Mills at Nagpur.

from his assistants and he understands the laborers better; but often he himself lacks the drive and gets poorer results than the European. Workers, furthermore, usually expect the European to insist upon more rigid standards than the Indian. Yet many mills are well managed by staffs composed wholly of Indians.

Labor. With regard to Indian cotton mill labor little can be added to what is written in the following chapters on labor. Since the industry is more widely scattered and therefore conducted under more varied circumstances than is the jute industry or coal mining, the types and conditions of labor are less uniform. There are now about 380,000 employees, 90 per cent of whom are in British India and 10 per cent in the Indian, or "Native" states. The great majority are males, though in many centers the proportion of females is slowly increasing. Formerly, large numbers of children were employed, but the cotton industry has never used so many children as the jute mills, probably because of the finer quality of the goods and the consequent necessity for more careful work. In both industries children are used mainly in doffing and in the jute industry the coarser material makes this much more frequent and more important. A few children are used as piecers on the spinning frames. For British India as a whole the number and proportions in 1931 were:[53]

EMPLOYEES IN COTTON MILLS, BRITISH INDIA

	NUMBER	PERCENTAGE OF TOTAL
Adult males	307,922	80.5
Adult females	64,791	17.0
Children	9,812	2.5
Total	382,525	100.0

In Bombay Presidency itself there is considerable variation in the proportion of men, women and children in the different centers. In Bombay City and Island, there is a larger proportion of women but a smaller proportion of children than in other centers. In Bombay City 22.6 per cent of all the laborers are women as against 21.6

[53] *Statistics of Factories for the Year 1931.* During the year 1930, the numbers of women declined by .88 per cent and children by 18.9 per cent of the numbers employed in 1925. In 1931, while the total numbers employed in Cotton Manufacturing increased 8.23 per cent, children employed decreased by 4.41 per cent and women by 1.74 per cent.

for the Presidency as a whole. This appears to be due to the higher costs of living in Bombay and also to the fact that a number of deserted women are found in such centers who have no place to go. One now sees almost no children in Bombay cotton mills; in 1926 they constituted less than three one-hundredths of 1 per cent of the total employed and all those employed were boys. In Ahmedabad children constitute 4 per cent of the total, and in Sholapur, 8.7 per cent. This difference is due to the fact that families settle for this work in rural centers while Bombay workers are usually immigrants whose families have been left in the country.

Most Indian factory operatives are immigrants from the surrounding districts. But among various cotton mill centers there is considerable difference in this respect. Bombay, the principal center of cotton manufacture, with about 41 per cent of the cotton mill operatives in the country, has the largest number of immigrants. In short, it presents in the most extreme form those undesirable features of industrial life and labor in India which are noted in the chapters on that subject. There are twice as many men as women in the population of Bombay.

In other cotton manufacturing centers the situation is somewhat better. In Ahmedabad and Sholapur, the second and third largest cotton manufacturing centers, a large majority of the inhabitants are native to the neighborhood and live with their families. Conditions of housing, as well as of climate, are much better and the cost of living is lower.

Much labor trouble has arisen in the cotton mills, causing some of the most destructive strikes, as well as some of the most effective labor organizations. The workers are very unprogressive and their relative efficiency is markedly below that of the jute laborers. Some of the most serious strikes have been due to opposition to the simplest kinds of efficiency measures, without which there seems little hope for the industry's future.

Products. A great change has taken place in the character of products since the beginning of the industry. Early mills were mainly for spinning coarse yarn which was finally sold to hand-loom weavers in India and adjoining countries, especially in China.[54] Not until 1915–6 did the mills consume as much yarn in weaving as was

[54] In 1917 it was calculated that 75 per cent of the cloth consumed in China was made on hand-looms. See *Memorandum on Cotton*, The League of Nations, Geneva, 1927, p. 18.

taken by hand-looms.[55] Even in 1925–6 less than two thirds of the Indian yarn was woven on Indian power looms, in spite of the fact that almost no yarn was exported. In mill compounds, one still sees bullock carts and camels laden with yarn for treks of up to eighty miles to the regions of the hand-loom weavers.

With the passage of time there has been a steadily increasing tendency to install looms and capture the home market for cloth rather than the foreign markets for yarn. Whereas in 1876 there were 120 spindles to one loom, the number fell to 105 in 1896, 100 in 1906, 59 in 1916 and to 50 in 1929. Since 1914 looms have increased by 68 per cent while spindles have increased by only 38 per cent. In Bombay the change is still greater. Looms have increased by 48 per cent since 1914, and spindles by only 15 per cent. "Whereas in 1907–8, 72 per cent of the production of Bombay mills was marketed in the form of yarn, in 1924–5, only 38 per cent was put on the market in the form of yarn." [56]

Indian piece-goods production, in both white and colored goods, has therefore about doubled in quantity,[57] while quality has steadily improved.[58]

PRODUCTION OF PIECE GOODS

(In Million Yards)

	1913–14	1925–26	1926–27	1927–28	1930–31	1932–33
Grey and bleached piece-goods . . .	872.4	1,414.3	1,577.2	1,675.0	2,003.5	2,422.9
Colored piece-goods .	291.9	540.2	681.5	681.6	557.6	746.9
Total piece-goods .	1,164.3*	1,954.5	2,258.7	2,356.6	2,561.1	3,169.8

* The production first exceeded 700 million yards in 1906–7.

Figures for yarn export show the same change, having fallen from 48 per cent of the total mill production in 1901–2 to 6.3 per cent in 1924–25 and 3 per cent in 1927–28.

Coarse yarns are still predominant, but relatively declining. Some 60 per cent of the total is below 20s count, whereas seventeen years ago, the percentage under 20s count was 72. The quality is

[55] Indian hand-looms also consume a large amount of rayon and silk yarn.

[56] *Statement submitted to the Tariff Board by Bombay Millowners' Association*, 1926, p. 13.

[57] As looms have increased by only 60 per cent, more yards are being produced per loom.

[58] *Review of the Trade of India*, and *Monthly Statistics of Cotton Spinning and Weaving in India.*

also slowly improving. The following table gives the counts of yarn in millions of pounds produced in recent years.[59]

PRODUCTION OF COTTON YARN
(By Counts in Million Pounds)

COUNTS	1913–14	1922–23	1923–24	1924–25	1925–26	1926–27	1927–28	1932–33
Nos. 1–10	131	103	85	93	96	115	106	115
Nos. 11–20	362	376	327	377	349	401	389	484
Nos. 21–30	167	209	182	224	214	248	263	297
Nos. 31–40	20	16	20	19	20	28	34	77
Above 40	3	2	3	6	6	11	11	36
Wastes					2	4	6	—

Counts above 30s are called the "competitive counts" since it has long been recognized that Indian mills could hold their own in the grades below 30s but that they could not compete with England in higher numbers. Within the past fifteen years both Japanese and Indian mills have taken to higher counts.

Generally also, as is to be expected, coarse cloths are produced, the average for 1924–5 in Bombay weighing one pound per 4.47 yards. This figure was only a small change from 4.27 yards per pound in 1907–8. About 50 per cent of the cloth produced is shirting, long cloth, and *dhuties*, the material for loin cloth or trousers in Indian dress. Of these cloths a very large proportion is not bleached, most of them being worn in the gray. Another large item is coarse colored goods which constitute some 25 per cent of the total as against 20 per cent in 1907–8.

The movement to spin higher counts and manufacture higher grades of cloth is especially marked in Ahmedabad, apparently because the mills there are on the average smaller and their agents give more personal attention to actual mill management. A few mills weave higher grade cloths from imported yarn. In the production of higher counts there are two main difficulties: one is the lack of cotton of sufficiently long staple and another is the need for a large amount of careful superintendence. One of the chief criticisms of the Bombay industry, made by the 1926–7 Tariff Board Report, was that it had not grasped its many advantages for the production of higher count yarns and of bleached, colored and printed goods. The moist climate is very suitable for the

[59] *Ibid.*

production of fine yarns and the city has ready access to the long-staple cottons of East Africa and Eygpt, as well as a freight rate from the American Gulf ports equal to that from those ports to Osaka. Lack of enterprise is the only explanation for Bombay's backwardness in this field, which has been so much more effectively worked by Japan.

Most of the mills, both in Bombay and in the up-country centers, have small attached dyeing and bleaching plants and some of these subsidiary works are being made into really good departments. But there are only two important independent bleaching and dyeing concerns in India and they are in Bombay.

There is no machine printing in India for, it is claimed, mechanical printing is too specialized for Indian conditions. One concern was established many years ago in Amedabad but it has become a plain manufacturing company and nothing but its name suggests its original purpose. It is said that the engraving of copper rollers is too expensive and too highly technical to be done in India. The Tariff Board concluded, it seems rightly, that this is no longer an adequate excuse and strongly recommended that a large concern for bleaching, dyeing and printing should be established in Bombay with government assistance. This proposal, together with the other principal recommendations, was rejected by the government.

We have already remarked that India shows few of the more advanced characteristics of the factory system. This is apparent in the small amount of specialization in cotton mill products. Unlike Lancashire, where every separate step in manufacture is a distinct business and where certain mills devote their entire attention to particular products, almost every Indian mill attempts to produce almost every kind of article and to make up whatever new product any other mill may introduce. Several operate their own gins and presses and the great majority carry on both spinning and weaving. Most mills have small dyeing establishments and a few go so far as to prepare the colored materials for hatbands and blazers for the various schools and colleges. Several mills also carry on the later processes of manufacture, producing tents, "purdahs" or backstops for tennis courts, etc. More than one large mill makes up such finished products as shirts, pajamas, and table "linen" and sells them by mail order throughout the country. Mill managers and agents

refuse to admit the advantages which would come from specialization and mass production of a single line, as is the custom in many American mills and in Japan. They argue that because of high railway rates a given mill must aim to meet the entire demand of its own neighborhood rather than produce specialties for sale all over the country; but this is a strange argument when many mills and importers place their various goods in such different markets as Madras, Calcutta and Amritsar. Under this policy the great advantages of standardization and mass production are quite impossible.

Marketing. Indian mills market their goods in various ways. Indeed, any given mill may use three or four different methods. A few mills have one selling agent who buys the entire output, paying cash for yarn and cloth as fast as they are produced. Since the goods are coarse and of fairly standard qualities, the price is readily calculated from the price of raw cotton plus allowance per pound for manufacturing. In other cases the agent is a "guarantee broker", selling the goods at an agreed rate and guaranteeing the account for a commission of one to two per cent. These agents sell to wholesale merchants who in turn generally sell, through brokers in the market, to retailers. This is the method most in vogue in Bombay. In Ahmedabad, since the mills are smaller and in closer touch with the market, they sell more goods direct. The guarantee brokerage system is much less common there and much of the mill production is disposed of direct to up-country wholesalers or through commission agents.[60] The mill takes its own risk on accounts but the brokers and commission agents are wealthy and make a business of lending money to purchasers.

In all these cases it often happens that the selling agent, under whichever of these three classes he comes, also takes considerable part in financing the mill. The exclusive agent who takes the entire product for cash, finances the entire marketing system while the guarantee broker bears the risk of the buyer defaulting. It is also very common for the broker to give some sort of financial assistance to the merchants who buy through him. There is a rather elaborate set of discounts and allowances and it is claimed that these are still the same as in 1913. Banks give little aid in the marketing of

[60] In the early English trading to India the brokerage was in kind. In some instances, entire pieces were kept, but in others a strip was torn off the end of each piece. See Foster, *The English Factories in India*, I, p. 205.

goods [61] but some scheme is usually provided by the commission agent or broker to give credit, often up to three or four months. These merchants are exceedingly shrewd and do business on narrow margins. The charges of the seller range from one-eighth of one per cent to two or three per cent, depending upon the goods and the service performed.

Several mills undertake the sale of their own goods, opening shops in various part of the country where they fill either large or small orders. In a few cases the managing agent of several different mills operates one selling agency for all. Two of the largest managing agency firms in Bombay, one having some thirteen mills under its control, keeps the products of all on sale in two big shops in Bombay and Calcutta. One of these large concerns states that 80 per cent of its output is sold in these combined shops. It is proud that a customer can buy one piece or a thousand bales in its shops where the coolie who needs a loin cloth or a face towel jostles the merchant who seeks a car-load. The organization for catering to foreign markets is not well developed. Selling is done either through agents in the foreign centers or through brokers in Bombay.

Calcutta is the largest cloth market in India and goods from both Lancashire and Japan go direct to it by water. Business is largely in the hands of *Marwari*,[62] merchants who, like the merchants in other markets, keep a few samples in a little cushion-lined booth where they sit and meet their customers. There are about two hundred importers who bring in their own standard marks, and about 1000 dealers, each of whom, through the agents, orders goods of his own particular brand.[63]

In India there is a magnificent organization for the sale of piece-goods. In one of these markets, literally hundreds of tiny shops, more like padded boxes, are packed side by side in huge buildings, usually the property of private persons. The aisles are crowded with customers, coolies carrying goods on their heads, or wheeling them on barrows while spans of big white oxen bring cartloads in or take others out to the warehouses. These fat,

[61] More attention is paid by banks to imported, especially British, goods than to Indian goods. It is said that this is due to the fact that British goods carry an invoice in which the banks have more confidence than in any Indian invoice.

[62] Persons from the province of Marwar in Rajputana. They are very able money lenders and merchants and have spread their business over a large part of the country.

[63] *Report of the Indian Tariff Board, Cotton Textile Enquiry, Evidence*, III, p. 50.

squatting merchants, bedecked in gilt braid and jewelry, know their business to the last detail and when they sit, poring over their long elaborate account books, half buried in cushions and samples, they make a sight not soon forgotten. But the merchant is seen at his best when closed in combat with a customer. His black eyes dart like flashlights, registering appreciation of the minutest detail. He makes use of tricks, jokes and cajolery, sharp wit and deceit. Selling may have been made a western science by the factory system, but it was a fine art in the East long before that system came into being.

Markets. The Indian cotton mills have been in the midst of a great market for their goods. India herself, Africa, the Near East, China, Malaysia and Australasia, are all in the warm belt and as most of them have population living on low incomes, cotton is their chief clothing. These peoples are poor but their great numbers furnish a large and constant demand. No country has been in so favorable a position to supply this market as has India.

A large share of this eastern demand for cloth has been and still is met by hand-weavers, though hand-spinning has been almost entirely displaced by the cheaper power-spun yarns. As nearly as can be determined, hand-woven cotton cloth in India is about 30 per cent and in China about 75 per cent of the total cotton cloth consumption. In Japan a large proportion was still hand-woven until the World War, but the quantity is now steadily diminishing. Some of the mill yarn for hand-looms has been produced in Asia but a very great amount has been imported regularly from Europe, principally from England. This great eastern market has been the chief outlet for the cotton manufactures of the advanced factory-using countries.

As we have already seen, the development of power-manufacturing in England gradually turned the Indian stream of cotton manufactures back upon itself, and from an exporter of hand produced cotton goods, to Europe, India became, after about 1830, a great importer of cotton goods from Europe. Much the same was true of China. Between 1840 and 1858 these imports of cotton yarn and cloth to India continued to grow and constituted from one half to two thirds of the total value of her imports. In 1875 they were considerably more than half the total and amounted in value to nearly one hundred million dollars, practically all coming

from the United Kingdom. In spite of the great growth of Indian industry, British imports continued. The amount of yarn fell off but cloth mounted higher and higher until in 1913–4 it was over three billion yards, or two and one-half times India's own mill-production. England was still easily the dominating power in supplying the entire eastern market, exporting 70 per cent of the cotton cloth entering international trade,[64] and 70 per cent of her exports went to the Near East, India and the Far East.[65] That is, India and her neighbors bought from England large amounts of yarn and roughly half of all the piece-goods entering into international commerce. Since the closing decade of the last century, it has been the task of the Indian cotton mills to take some of this market away from the native hand-weavers and from the mills of competing countries. More recently, and especially since the World War, the competition has been with mills farther east, first Japan, and now also China.

With the European producers engaged in war, their exports to the Orient slowed down or ceased entirely, prices rose and the eastern manufacturers found their business booming. Cotton spindles in Japan, China and India together more than doubled, but relatively Japan and China gained far more than did India. The following table shows the remarkable advance made in the three countries.[66]

SPINNING SPINDLES

	1914	1930	INCREASE
Japan	2,414,544	6,837,000	4.422,456
India	6,397,142	8,807,000	2,409,858
China	300,000	3,699,000	3,399,000
Totals	9,111,686	19,343,000	10,231,314

In India, the advance between 1914 and 1930 was 37 per cent. In Japan and China together—and much of the Chinese advance was under Japanese control—the gain was 188 per cent.

For Indian mills there are two main problems of marketing: one concerns yarn, the other, cloth, each of which has a foreign and a domestic market. The early mills sent cotton yarn to China,

[64] League of Nations, *Memorandum on Cotton*, 1927, p. 31, Table VIII.
[65] Professor G. W. Daniels *Publications of the Manchester Statistical Society*, March 4, 1924, p. 119, Table III.
[66] Pearse, *The Cotton Industry of India*, 1930, p. 1.

especially from Bombay, Madras and Tuticorin, and this business, while not expanding markedly, continued to grow almost until the World War. These port centers had easy access by water to China, Japan and the other eastern markets while interior mills were closer to the Indian hand-weavers. We have already seen that 47 per cent of the 423,000,000 lbs. of yarn produced in Indian mills in 1896 was exported and that in 1907–8, 72 per cent of the yarn produced in Bombay mills was sold abroad, of which some 90 per cent went to China.

In coarse yarns the Indian mills made an impression very early and during the 1880's the pounds of yarn exported came to exceed the pounds imported. By 1895–6 the weight of exports was about four times as great as that of imports, although because fine counts were imported and coarse counts were exported the value of exports was only a trifle over double that of imports. By 1900 the weight of exports was nearly six times as great as of imports but the value was only three times as great. At the outbreak of the World War India was the largest importer of yarns, except Germany, and the largest exporter of yarns, except the United Kingdom. Exports were large because the Indian production was coarse and cheap, hence well suited for making up into low grade cloths in China and other eastern countries; and imports were large because the hand-looms of India produce much fine quality cloth for which they require a finer yarn than the Indian mills were able to produce from Indian cotton. Indian mills provided coarse yarns for use at home and in other Asiatic markets while England provided fine yarns for India's hand-looms.

Beginning in the 1890's a gradual change came in this situation. A number of influences combined to cause the loss of a large share of the outside market for yarn and Indian mills turned gradually to the home market and to the weaving of cloth. This is often blamed by Indian millowners on the currency policy of the government which since 1893 caused the value of the rupee to depend upon gold rather than upon silver, thus disrupting the exchange relations with China whose money was still silver. More important was the growth of cotton manufacturing in both Japan and China. Japanese mills were soon supplying the major part of the yarn for their own home industry and they and the Chinese mills covered a steadily increasing portion of China's demand. This movement, which was gradu-

ally progressing before the War, was much hastened by that event. The Indian mills turned their attention to supplying more yarn to the hand-weavers at home, as well as to taking some of the cloth trade from these same hand-weavers and the British importers.

In the five years, 1896–7—1900–1, Indian mill-made cloth constituted only 10 per cent of the total cloth consumption, as against 27 per cent woven on hand-looms and 63 per cent imported. In the four years preceding the World War the Indian mill output approximately equalled the output of the hand-looms. In the five years 1920–5 Indian mill-made cloth constituted 38 per cent of the total consumption as against 29 per cent woven on hand-looms and 33 per cent imported.[67] In 1931–2 the percentages were 56.6 for the mills, 29.7 for the hand-looms and imports only 13.7.

While the Indian mills are making more of their own yarn into cloth for the home market, their place in the sale of yarns is less favorable. They provide three fourths or more of the yarn for Indian hand-looms in competition with England, Japan, and China, but the Chinese weavers have rejected Indian yarns altogether. While since 1913–4, total production has increased by 25 per cent, exports have declined by over 50 per cent. The same trend is evident in piece-goods, the exports of which are only about one tenth the amount of piece-goods imported and show no tendency to increase.

The Indian mills have been nearly eliminated from the outside markets and while still predominant at home, are meeting new foreign competition within their own borders. Whereas imports were formerly of high grade goods from England, to these are now added both coarser and finer goods from Japan and China. In 1927–8 China, long India's principal buyer, "was actually selling large quantities of her cotton yarn in the Indian market, undercutting both the local product and the imports from other sources." [68] China has recently provided about 25 per cent of all the yarn imports. Yarn from Japan also shows a great increase but that from Lancashire a marked decrease.

In piece-goods a similar though less striking change has taken place. In 1913–4 the United Kingdom and Japan furnished respectively 97.1 per cent and 0.3 per cent of the imports of cloth,

[67] See R. D. Bell, *Notes on the Indian Textile Industry with special reference to Hand-Weaving*, Bombay Government Press, 1926, p. 6.

[68] *Review of the Trade of India in 1927–8*, p. 65.

but in 1932–3 these percentages were 48.7 and 47.3. Since the five year period 1909–13, England has lost about half her cloth exports to India. Of this the Indians have won about seventy-five per cent and the Japanese, about twenty per cent.[69]

The figures for 1913–4 are compared with those for 1929–30 and 1930–1 in the following table:[70]

COTTON PIECE-GOODS IN INDIA
(In Million Yards)

	1913–14	1929–30	1930–31
Indian Mill Production	1,164.3	2,419.0	2,561.1
Imported Goods	3,197.1	1,919.3	890.0
Total Goods	4,361.4	4,338.3	3,451.1
Exported Indian Goods	89.2	133.4	97.7
Exported Foreign Goods	62.1	22.2	17.4
Total Exports	151.3	155.6	115.1
Balance Available	4,201.1	4,182.7	3,336.0

The increase in Indian weaving is very marked, though the extremely low figure for cloth imports in 1930–1 may be taken as abnormal since, largely for political reasons, a boycott of foreign cloth—especially British—was in progress.

The struggle between England and Japan for the Indian market is shown in the next table.[71]

PERCENTAGES OF TOTAL PIECE-GOODS IMPORTED TO INDIA FROM THE UNITED KINGDOM AND JAPAN

YEAR	UNITED KINGDOM	JAPAN
1913–4	97.1	0.3
1922–3	91.2	6.8
1923–4	88.8	8.2
1924–5	88.5	8.5
1925–6	82.3	13.9
1926–7	82.0	13.6
1927–8	78.2	16.4
1928–9	75.2	18.4
1929–30	65.0	29.3
1930–1	58.8	36.1
1931–2	49.0	43.0
1932–3	48.7	47.3

[69] Arno S. Pearse, *The Cotton Industry of India*, 1930, p. 3.
[70] *Review of the Trade of India*, 1930–1, p. 81.
[71] *Review of the Trade of India*, 1931–32.

During the year 1931 the Japanese furnished considerably more than half the piece-goods imported through the port of Bombay.

Similarly, in yarn the Indians are taking a larger share of their home market.[72]

INDIAN COTTON YARN
(In Million Pounds)

	1929–30	1930–31
Indian Mill Production	834	867
Imports from the United Kingdom	20	10
Imports from Japan	11	7
Imports from Others	13	12
Total Imports	44	29

A large share of the Japanese imports are definitely competitive—that is, their sale precludes the sale of Indian goods. While Japanese imports of yarn are of finer counts and their price is slightly higher than most Indian yarn, Indians prefer the Japanese yarn to the home product. The same is true of piece-goods. The Tariff Board calculates that approximately 40 per cent of Japanese imports "compete directly with the staple products of the Indian mills."

This changed competitive situation is unfavorable to India. She is now capturing some of the high count trade from Lancashire, but she is being attacked vigorously "in the rear," so to speak, by both Japan and China, the former becoming very active in the medium and higher grades, and the latter in the lower grades. Japan's recent much greater currency and exchange depreciation has given that rival a still greater advantage and the Indian government has taken further drastic action. The Viceroy was given (in June, 1933) power to raise duties against imports to such an extent as is "considered necessary." Immediately the duty on non-British imports of cotton piece-goods was raised from the already high rate of 50 per cent to 75 per cent. The Japanese became alarmed and threatened to boycott Indian raw cotton which they now buy in quantity. After considerable negotiation a quota agreement on both exports of raw cotton and imports of cotton manufactures was finally reached. Following the period of high profits which lasted until 1922, there has been a very serious depression in the Indian

[72] *Ibid.*, 1930–31.

mill industry. The Bombay mills suffered most and made the most insistent demands for governmental assistance. The mill owners, headed by the Bombay group, marshalled all the reasons available for the existence of depression but the chief point of attack was Japan, which, it was claimed, took away India's market by "unfair" means. To them it seemed unbelievable that a country could import cotton by a three-weeks' voyage, manufacture it, ship it back again, pay a heavy customs duty, carry it to the interior, and then undersell the cotton manufactures of the country which grew the raw cotton. The Japanese were accused of receiving government aid in the form of shipping subsidies and bounties on export goods. They were also attacked for their bad labor conditions under which double shifts were worked, as against single shifts in India, and for employing women and children at night. India had come into line with the labor sections of the Treaty of Versailles and the Washington Labor Conference, but Japan had not. It was shown that[73] (*a*) "With a total spindleage of less than 5,000,000 Japan produces over 2,000,000 bales of yarn per annum, whereas India with 8,333,000 spindles produces only 1,500,000 bales of yarn. (*b*) With only just over 60,000 looms Japan produces well over 1,000 million yards of piece-goods per annum; India with 2½ times as many looms, produces only 1,700 million yards of cloth per annum."

The Tariff Board brought out many facts. The Indian mills were shown to be unprogressive in many respects and to be managed by an expensive and inadequate agency system. There had been too much speculation, overcapitalization had been rife, and too much money had been distributed in dividends. Nevertheless the Board concurred in part with the criticisms directed against Japan.

The allegations concerning a Japanese government cotton subsidy and a direct shipping subsidy between Japan and India proved baseless.[74] The Japanese internal consumption tax which, moreover,

[73] *Statement of the Bombay Millowners' Association to the Indian Tariff Board*, 1926, p. 18.

[74] The Board concluded that shipping subsidies in general were a "considerable" aid to the Japanese cotton industry. An investigator for the United States Department of Commerce says: "Special subsidies to steamship lines carrying cotton or cotton goods are also in effect. The Osaka Shosen Kaisha, for instance, has since 1926 been receiving 400,000 yen ($200,000) per annum for its East Africa service, and the Nippon Yusen Kaisha received 663,075 yen ($330,000) in 1925–6 and 616,379 yen ($310,000) in 1926–7 for fourteen San Francisco–Japan sailings per annum. Because

was removed in 1926, was not levied on export goods. There were no subsidies on the lines of ships handling the Indian trade. It was found that transport costs on the outshipment of cotton plus the return of piece-goods added only ¾ cent per pound to the cost of piece-goods, and since the average price of long cloth was about 40 cents per pound, this was not a large item.

The foreign exchange situation has undoubtedly aided the Japanese exporters. The yen had been very low since the 1923 earthquake allowing a low price in rupees to give a good price in yen to Japanese exporters. This has been still more marked during 1932 and 1933. The mill-owners also made much of the fact that the Indian government fixed the value of the rupee at 1 shilling 6 pence rather than at 1 shilling 4 pence as it had been before the War.[75] This, they claimed, placed a handicap of 12½ per cent upon the Indian manufacturer. The Tariff Board concluded that price adjustment was rapidly taking place but agreed that, coming at a time of depression, this rise in exchange had been to some extent harmful.

In the matter of labor conditions, the Board found that[76] "both in regard to hours of labor and the employment of women and juveniles at night, the conditions of labor in the Japanese cotton industry are inferior to those in India." In this the Board was justified though the difference was not nearly so great as the legal stipulations suggest. The great evil in Japan has been the employment of women and girls as young as fourteen on regular night shifts. This has never been a practice in Indian mills and has not been allowed since 1911. It was discontinued in Japan from July 1929, though two shifts may still be worked by beginning at 4 A.M. and closing at 10 P.M.[77] Hours were also longer in Japan, often being extended to eleven, when two shifts were employed, or to twelve for single shifts. In India no night work was allowed

of the receipt of subsidies, the shipping companies are more or less obligated to the government. Thus, they are sometimes requested to cut rates on goods in the trade which the government wishes to foster. This has been particularly marked in the export trade in cotton goods." Herbert M. Bratter in *Foreign Affairs*, Oct. 1930, p. 162.

[75] The value of the Indian currency unit is based upon the English pound sterling and not upon its own metallic content. The circulating media are paper and silver rupees whose value is kept in a certain relation to shillings and pence by government regulation of the number of rupees in circulation. The silver rupee is really only "a bank note finally redeemable in British exchange but printed on silver."

[76] *Report*, p. 69.

[77] This last Japanese factory act also has the unfortunate "hole" which allows hours to be extended to 11 P.M. if the permission of the proper authority is obtained.

for women or children, and both men's and women's hours were limited to eleven per day and sixty per week while children under sixteen could be employed for only six hours.

The variety of laboring conditions in each country makes generalizations almost impossible; but, apart from the night-shift, working and living conditions are commonly far superior in Japan. While there are different evaluations of various aspects of the two situations, in my judgment Japanese conditions are clearly preferable,[78] because of superior housing and sanitation, better food and facilities for bathing and recreation. Japanese mills, as a group, have far more elaborate arrangements to promote the welfare of their employees than are found in India. The disadvantages of slightly longer hours is offset also by the fact that young women, who constitute about 80 per cent of the Japanese cotton mill force, live in factory dormitories and are able to step directly from the factory into an excellent bath-room and to come directly from their rooms or little gardens to work in the morning. The Indian hand often spends an hour or more going back and forth and is almost sure to have a certain amount of "chores" or housework to do. The Japanese hands have no other work and spend a more agreeable day than the Indian workers.

On the other hand, the Japanese work harder. Both management and working-force are more efficient.[79] Tasks are more carefully arranged and the workers are better disciplined and at the same time better treated. Older women overseers are commonly very capable and there are no race or caste distinctions between employers, supervisors and employees. The Japanese factory hand is very much of an individual and, while the women are docile, there are distinct limits to what they will endure. There is therefore a high degree of reasonableness in the introduction of new processes and methods of organization. In Japan, as in India, it is in the smaller shops, too small for the Factory Act to apply, and where relationships are more purely personal, that individual instances of oppression are most common.

A part of the claim of sweated labor was also based upon wages paid. Conditions and work differ widely but Japanese women are

[78] Mr. Arno S. Pearse, for a long time Secretary of the International Cotton Spinners' Federation of Manchester, who has studied conditions in both countries, is also clearly of this opinion. *The Cotton Industry of India*, 1930, pp. 11–14.

[79] See Chapter XVI on Efficiency of Labor.

paid considerably more than Indian women, and when their allowances of food and housing are considered, they receive more than Indian men. In 1923 the average wage for men was yen 1.48 (74 cents) in Japan and Rs. 1.50 (50 cents) in India. For women the wage was 1.18 yen (59 cents) in Japan and three-fourths of a rupee (25 cents) in India.[80] To the Japanese figures should be added at least ten cents per day for food and lodging provided. Declines in Japanese wages and in the exchange value of the yen have recently brought these wages much closer together.

The double shift in Japan gives certain advantages in capital and administrative charges, calculated by the Indian Tariff Board at 4 per cent for the industry as a whole.[81] The exact amount is impossible to state since much depends upon the particular period examined. The mill-owners claimed that the Japanese enjoyed a still greater advantage and the Board's figure appears conservative. Since this inquiry, a large number of the more progressive mills in Bombay and Ahmedabad have begun night work with apparent success; but they employ chiefly men at night.

The great superiority of the Japanese over the Indian industries is in the management. This is due partly to the readiness of the government to do its share. The home market was reserved for home mills. The Japanese mills import long staple cottons to mix with Indian and secure far better results per unit of cost than do the Indian mills from Indian cotton alone. They also bleach and dye very successfully and have made excellent beginnings in printing. Some of the most up-to-date bleaching, dyeing and printing works in the world are in Japan. There has been a much more optimistic and energetic approach to the entire matter by the government, the business men and the workers, and every item of purchase, production, labor and sale is given business-like attention. It will require either very high tariffs or a much higher degree of efficiency on the part of the Indian industry to keep the Japanese manufacturers out of the Indian market. The Japanese mills in both Japan and China[82] will compete not only with Indian mills but also more and more severely with those of Lancashire. Just at

[80] Figures from *Report on Wages and Hours of Labor in the Cotton Mill Industry in Bombay Presidency*, by the Bombay Labour Office, 1925, p. 11, and cotton statistics of Japan, 1923–4, Table II.

[81] *Report*, p. 62.

[82] The larger and more efficient mills in China are owned and operated by Japanese companies though employing Chinese hands.

present, however, it must be remembered, the Japanese are making a determined stand because they too are more or less over-expanded on account of the War and post-War boom and because wages have not been fully adjusted to prices and exchange depreciation. Since 1913 Japan's spindles have more than doubled while her looms have tripled. This is all new machinery in new mills and will be efficient for decades to come. Japan's position and climate, together with her energetic and cheap labor and her excellent leadership make her a dangerous contender not only for the Indian market but for the other markets of Asia.

One thing is certain, cotton manufacturing is no longer to be an occidental monopoly. The eastern countries are destined to supply a large share of their own market, if not, indeed, to turn the tables again and send a stream of exports to the Occident.

Bombay Mills versus Those Up-country. Within India the Bombay mills have suffered also from competition with mills in the interior. Bombay was a favorable site so long as mill products were largely exported; but its advantage disappeared when the tariff and competition in foreign markets made it advisable to turn to the home market. Bombay's better climate was insufficient to offset the expense of bringing cotton from the interior and carrying cloth back again. The cost per pound of shipping cloth between Bombay and Sholapur (283 miles) is just equal to the charge of transporting raw cotton to Japan and carrying cloth back to India. Formerly, Bombay labor was superior to that in the interior by virtue of greater skill and less conservatism; but that situation has changed. A skilled labor supply has developed in several other centers, and since there is less crowding and better sanitation, up-country laborers are nearly as efficient as those of Bombay. Yet all costs of living are so much higher in Bombay that wages must also be higher, thus making labor cost of production higher than in the interior centers. Taxes and charges for certain utilities, such as water, are also higher in the larger city.[83]

While Bombay languishes, therefore, the up-country mills continue to expand. Between 1925 and 1931, Mr. Gandhi's city of Ahmedabad showed an increase of 30 per cent in mills, 48 per

[83] Bombay mills have been much perturbed by a special tax, R. 1 (36¢) per bale on raw cotton coming to that city, levied to provide funds for a municipal housing scheme which was far from successful.

cent in yarn, and 46 per cent in cloth production.[84] The gross profits of 20 up-country mills during 1927 were 26 per cent as compared to 12 per cent for 42 Bombay mills.[85] In 1930 twenty-five Bombay mills were closed down.[86] A shift of the industry from Bombay to the interior, not unlike that which has occurred from New England to the southern states, is apparently to take place.

[84] *Report of the Indian Tariff Board regarding the Grant of Protection to the Cotton Textile Industry*, 1932, p. 11.
[85] *Indian Textile Journal*, Sept., 1928, p. 388.
[86] *Ibid.*, August, 1930.

CHAPTER XI

JUTE AND JUTE MANUFACTURE

INDIA'S second textile industry, jute manufacturing, employs nearly as many workers as her cotton mills. The Province of Bengal practically monopolizes the world's production of raw jute and much over half of the total crop is turned into cloth in India's 99 factories. Nearly all these factories are in Bengal and generally are located on the low banks of the Hooghly River for 35 miles above and 25 miles below Calcutta. The large degree of manufacturing monopoly which Bengal possesses depends upon the combination of a good start, able and industrious Scottish managers and mill assistants, and the abundant supply of cheap and relatively efficient Indian labor. Jute manufacturing has been managed almost entirely by British business men, though lately its ownership is passing more and more to Indians. It is estimated that from 50 to 60 per cent of the jute mill shares are now owned by Indians,[1] and at least two large mills are under Indian managing agents. The managers and their assistants, however, are still Scotsmen.

The raw material monopoly rests upon a combination of heat and abundant moisture for growing; many clear, clean streams for "retting" (or soaking) and for transportation; cheap agricultural labor for tending, harvesting and stripping the plants; and with the advent of modern transportation the growth of a world market for a cheap packing material.

Jute, long known in India as supplying a fiber for wrapping cloth and clothing, is an herbaceous annual of which there are several varieties. Two of these, differing very little except in the seed pod, are cultivated in India, the *Corchorus capsularis* and the *Corchorus olitorius*. The former is grown more extensively and is the principal type produced in the northern and eastern parts of Bengal

[1] This has been estimated as high as 66 2/3 per cent. Sir Basil Blackett in *Barron's Weekly*, Sept. 15, 1930.

from which most of the good jute comes. It is a *bast* fiber, that is, the fiber for working is taken from the inner layer of the bark rather than from the seed, as is cotton fiber. It grows to an enormous height, commonly reaching 10 to 12 feet and up to 16 feet if carefully manured and tended.

Jute Growing. The jute crop is grown on the small independent farms of Bengal which average only 3.1 acres and are commonly operated by a single family. In planting, and especially in harvesting, relatives and neighbors work much together, that is, they "exchange work." Watering is usually by natural rainfall and very little fertilizing is necessary. The ground is first cultivated and cross-cultivated several times with the light Indian plow (or single-toothed harrow) drawn by bullocks. Seeding is performed in various ways, but broadcast sowing and cross sowing are most common. The plants are thinned and weeded, and in the earlier stages of growth the soil is kept loose on the surface by an implement similar to a harrow. Without rows or hills the working is naturally not very thorough. From 2½ to 3½ million acres are planted annually. The seed is sown between the middle of February and the end of May, but on the better lands, where water is plentiful, sowing is usually finished by the middle of March. Harvesting begins at the end of June and continues until the end of October as the plants may be cut very young and immature or they may be allowed to develop thoroughly.

In the latter case the yield is heavier but the quality is coarse and of an unsatisfactory color and texture. The cut stalks are submerged in water and left for something like two weeks to loosen the bark. This is called "retting." When the bark is soft enough to strip easily and the outer scale has fallen away, the jute is taken out and stripped. This requires considerable skill which is not easily acquired. Only certain particular swishing movements, together with just the proper amount of pull at the right moment, are effective. Harvesting is often done in water and retting compels men to work in water, literally to their necks.

The jute fiber, having been removed from the stalks and cleaned, is hung up to dry. The strips from a large number of stalks are then combined in "wads" and these further into coarse rolls weighing about 80 pounds, or into soft bales weighing about 280 pounds, in which form it is sold to dealers and to Calcutta mills. Sometimes

the crop is sorted by the farmers into several qualities but final sorting is done by the dealers before baling.

Like the trade in most commodities in oriental countries, that in raw jute is carried on by a large number of persons in a great variety of ways. The search for ways of earning a living, where nearly all opportunities have been appropriated, becomes so difficult that men try every conceivable means, and trade is easier than labor. Persons with sufficient capital carry on what business they can while the man without capital acts as a kind of broker-speculator. These middlemen take a large slice from the produce of the farmer, sometimes estimated as high as 25 per cent.[2] Coöperative sale has not been successfully developed.

Raw jute often goes through several hands before reaching the spinner, though in a few instances the farmer takes it direct to a Calcutta dealer who sells it through a broker to the mill. There are large dealers who have their buying agencies throughout the growing districts. At each "central" is a baling press which may be for temporary (*kutcha*) baling, sufficient for shipment to the Indian factories, or for solid (*pucca*) baling, suitable for export. Sometimes the press is owned by the dealer himself and sometimes by another, in which case it is rented at so much per bale pressed. Most of the large dealers are European concerns, though at least one is Greek and there are many Armenians and Anglo-Indians in the business. Many presses and their accompanying buildings are also owned by Indians. Baling is a considerable business, employing now some 35,000 hands in about 122 presses, 112 of which are in Bengal.

Below the manager of this up-country "central" office and press are persons in charge of out-stations, collecting jute from their respective areas. The head of an out-station is a local person, usually a merchant-money-lender (*mahajan*) who has capital and wide acquaintance. Typically he acts as a broker, having several smaller men under him, and he also owns a warehouse in which the jute is stored and for which he receives so much per *maund* (82 lbs.). Besides his own money he usually has large funds loaned by the dealer at a favorable rate of interest. He, in turn, advances money to the small dealers, the *paikar* (or *faria*) and the *bepari*, the latter

[2] See Report of a speech by Sir P. C. Ray, *The Statesman*, Calcutta, January 8, 1927.

sometimes buying directly for the big dealer, who then advances him money, and sometimes for the *mahajan,* supposedly on a commission. The brokers aim, in any case, to make whatever profit they can, and to that end, when prices are rising, fail to report purchases, hoping to make delivery later at a better figure. There seems to be no particular embarrassment on this score, as it is recognized that the commission agent is making all he can.

These small buyers go directly to farmers or else meet them in local markets. The *bepari* is the larger of the two and often does considerable business on his own account. The *faria* has a bad reputation for weighting his jute with water and sand.

Sometimes the warehouse owner takes no part in the trade, merely drawing his income from warehousing charges. He is then called an *aratdar* and his charge *aratdari.* Generally, however, the *aratdar* is also a broker and receives, besides a warehousing charge, a commission on all purchases effected through himself or his appointees.

The manager of the "central" must be a good judge of jute and also thoroughly familiar with all the tricks of the trade. He buys the loose jute, bales it and resells it. Here, characteristically, the labor is furnished by contractors and subcontractors who at so much per *maund,* supply the hands to carry the jute from the boat into the press-house, which is always on the bank of some river or back water. Another contractor furnishes hands to cut off the roots and sort the jute into between five and ten classes. These people work also by the *maund* and are under foremen appointed by the contractor and overseers appointed by the dealer, who is buying and baling the jute. This is a very particular and difficult work, because both the dealer's profit and final payments to the sellers, *i.e.,* the *faria, bepari,* and *mahajan,* depend upon proper assortment, and the sorters are often bribed to make more favorable classifications than qualities justify. Oversight must be very close and competent.

Other laborers carry the jute to and from the press and bale it while still others "export" the bales—that is, carry them again to the boats for shipment. There are thus four groups of laborers, often under four separate contractors. In case the press is taken on hire, its services will also be paid for at so much per bale. This means that the total expense of converting miscellaneous lots of loose jute

on boats into carefully assorted and baled jute, again on boats, can be calculated by simple addition. The total expenses of hard, or *pucca,* baling are between Rs. 3 and Rs. 5 per bale of 400 lbs.

This is one of the best examples of the contract arrangements, characteristic of the early stages of the factory system, whereby the chief entrepreneur shifts the labor problem to the shoulders of independent subcontractors beneath him.[3]

The laborers who carry jute are generally imported, up-country men, the Bengali being too light physically for the work. Four-hundred-pound bales are carried on the heads of three men who walk very close together, but neither abreast nor in tandem. They have developed a complicated step, such as a six-legged horse might employ, and which never seems to go wrong. These men are usually under a Mohammedan contractor and earn considerably more than similar laborers get in lighter factory work.

Sorting, the dirtiest work connected with jute after it leaves the farm, is likely to be done by Bengalis, and both men and women are employed. In the jute mills the dust is considerably reduced by "batching oil" which is applied to make the fiber more pliable, and in a few mills there are dust extractors. But in the sorting houses the dust is very bad and there are no arrangements for reducing it. Work of this kind is almost continuous in Calcutta but in rural districts the season lasts about six months. While engaged, the laborers from a distance live in *bustees* ("shacks"), often provided by the press owner, rent free.

While many Indian mills send buyers to the interior, the raw jute market centers in Calcutta. Jute is shipped there by water, bullock-cart or rail, stored in warehouses and sold by brokers. These warehousemen are also called *aratdars* and are commonly brokers also. "Spot" jute is on sale in at least four different market places in Calcutta, and in those regions the streets are crowded with heavy two-wheeled wagons piled high with bales and drawn by water-buffalo. These are often great strong creatures but, except in cool weather, it is not pleasant to watch them. They carry a considerable part of the badly balanced load on their necks, and being water animals with no sweat glands, suffer terribly on hot days. Moving at a snail's pace they obstruct traffic, rendering motor-trucks use-

[3] See Chapter VI.

less. Though not legally constituted, these market-places constitute two markets, one for loose (*kutcha*) baled jute and one for exportable hard (*pucca*) baled jute.

Jute varies according to seed, soil, water, season, methods of cultivation, fertilizing, harvesting, retting, drying, and baling. The fibers are of great variety, and no good method of standardizing their qualities has been devised. The chief characteristics determining quality [4] are:

(1) Strength
(2) Length
(3) Color
(4) Absence of roots
(5) Fineness
(6) Soundness (well grown and free from disease).

Fiber is classified roughly according to whether it is useful for:

(1) Hessian (good cloth) Warp
(2) Hessian Weft
(3) Sacking Warp
(4) Sacking Weft
(5) Rejections.

Loose or temporarily baled jute is generally divided into four main classes, called 1's, 2's, 3's, and 4's, each of which is again subdivided into as many as 5 or 6 subclasses. These divisions depend upon the uses to which various proportions of the quality may be put; for example, warp yarn for the best jute cloth (hessians)[5] at one extreme and weft for the coarsest and poorest sacking at the other. Some of the poorest cuttings (4 to 12 inches chipped off at the butts or from the tops), rejected for weaving, are shipped to Europe for paper making. The standard of loose jute is a bale having 50 per cent of 2's and 50 per cent of 3's.

Hard (*pucca*) baled jute for export is classified in a most elaborate and confusing manner. Besides covering the ranges found in loose jute, it is put up in a large number of brands by dealers. In the official list of the Calcutta Baled Jute Association for 1926–7

[4] See also N. C. Chaudhury, *Jute in Bengal*, 1920, p. 169.
[5] So named from the fact that the linen trade came to Scotland through the German State of Hesse.

there are 2299 separate brands offered by 134 dealers, making an average of over 17 each. One dealer offers 36 grades or brands, some of which are so subdivided as to make about 45 distinct qualities. Through this maze runs the basic grouping used for loose jute.

A great difficulty is that every dealer undertakes to capture trade by putting better and better jute under low classifications.[6] Hence every classification tends to rise above the actual quality and additions are made at the bottom until the greatest confusion prevails. As an instance, "rejections" were once such goods as would be rejected even in Calcutta mills, but in 1927–8 nearly, if not all, the loose jute used by them was classified as some grade of "rejection."[7] One authority says:[8]

> The present system of marking is so defective and confusing that even the balers have no control over the assortments made by their subordinates. Unless examining the samples of jute of a mark or marks, no jute experts would know anything about the qualities.

In spite of this difficulty, dealings are by contract, with arrangements through the Bengal Chamber of Commerce for arbitration. The qualities of any given season come to be sufficiently recognized so that men in the trade can arbitrate satisfactorily. Naturally the local manufacturers are able to meet this difficulty far better than their competitors in other countries. They can go into the jute centers in a few hours and familiarize themselves with the season's qualities and on account of proximity can readily refuse jute or undertake arbitration with confidence. Jute baled and sold by European concerns brings a little higher price than that offered by Indians.

Being a local monopoly, the total supply of which may vary markedly from the demand, the price fluctuates a great deal. The price fluctuation is also affected by the imperfect forecasting of the crop. "Lightnings" (the standard grade of hard baled jute), for example, rose from Rs. 55–8–0 per bale on July 1, 1924, to Rs. 118–8–0 on April 30, 1925.[9] Even during 1926, one quality of loose jute fell from Rs. 26 per *maund* in January to Rs. 10.75 in

[6] This differs from the more usual trick of putting lower quality produce under a given classification; but for the purpose intended it is equally logical.

[7] In the market they were known as R's, T.R.'s, and B.T.R.'s.

[8] Chaudhury, *Jute in Bengal*, 1920, p. 166.

[9] See *Report of Indian Jute Mills Association*, July 1924–June 1925.

August.[10] From 1931 to 1933 the price has been much lower, falling to less than half that of 1914. The prices of the past few years are shown in the accompanying table.

AVERAGE PRICES PER BALE OF 400 LBS. OF RAW JUTE IN CALCUTTA

	Rs.	As.	Ps.
1895	33	0	0
1900	34	14	0
1905	41	12	0
1910	34	2	0
1915	49	8	0
1916	54	0	0
1917	54	0	0
1918	47	12	0
1919	89	8	0
1920	78	8	0
1921	81	12	0
1922	83	0	0
1923	79	4	0
1924	66	4	0
1925	89	4	0
1926	110	12	0
1927	68	14	0
1928	75	0	11
1929	71	4	0
1929–30	56	8	0
1930–31	30	0	0
1931–32	30	0	0
April, 1932	28	8	0
July, 1933	27	12	0

Speculation in jute futures is also blamed for many fluctuations. There is no legally constituted jute exchange, and manufacturers insist that one is not needed. But certain Indian groups—especially it is said of the Calcutta Marwaris—are very fond of gambling and until recently they have been in the habit of trading in jute at what is known as the *Bhitar Bazar*. Contracts were sometimes verbal and sometimes written, but there was no intention of delivery. Settlement was merely by cash payment of balances. To improve appearances the East Indian Jute Association, which insisted upon signed contracts, was formed, but the government finally undertook to prohibit the business entirely.

There are many raw jute brokerage houses, some of which possess very substantial means and are often the real power behind the baling business, occupying in jute a position similar to that which some cloth merchants in Bombay hold in cotton manufactur-

[10] *Investor's Indian Year Book*, 1926–7, p. 181.

ing. The Indian jute market is conducted with the greatest secrecy, as are most markets in countries not yet fully under the control of factory system standards. The same method is used as that described as formerly prevailing in the cotton market. No record is made of transactions, yet this enormous trade, running into hundreds of thousands of rupees, is safely carried on.

Raw jute has long been an important article of export, mainly to Europe. Until 1929–30 the Indian consumption has been steadily rising but the crops have been large enough to leave export figures relatively undiminished, as may be seen from the accompanying table.

PRODUCTION, MILL CONSUMPTION AND EXPORTS OF RAW JUTE
In Lakhs of Bales (1 Lakh = 100,000)

	PRODUCTION	MILL CONSUMPTION July-June	EXPORTS July-June
Season July–June			
1912–13	98	46	50
1913–1914	89	45	43
1914–1915	104	49	30
1915–1916	73	58	32
1916–1917	83	57	28
1917–1918	89	54	18
1918–1919	70	51	22
1919–1920	86	52	34
1920–1921	59	56	23
1921–1922	40	44	30
1922–1923	54	47	29
1923–1924	85	51	38
1924–1925	81	57	39
1925–1926	70	55	36
1926–1927	121	55	45
1927–1928	102	58	49
1928–1929	99	60	49
1929–1930	103	64	45
1930–1931	112	46	34
1931–1932	55	43	31
1932–1933	58	44	35

Dundee, since the start of its jute industry in 1835, is the largest European center of manufacture, but there are several mills in Germany, France, Czechoslovakia and Italy. Since the War, as shown by the table on page 240, Continental Europe has become the largest export market for raw jute. There are several mills in North America and a few in South America, but nearly all those in North America produce specialties, like cords, yarns and very coarse bagging for cotton bales.

EXPORTS OF JUTE (INCLUDING REJECTIONS AND CUTTINGS) FROM CALCUTTA AND CHITTAGONG

In Lahks of Bales of 400 Lbs.

PERIOD	TO U. K.	CONTINENT	AMERICA	OTHER PORTS	TOTAL
Quinquennial average					
1893–1897	19.39	10.00	4.67	17	34.23
1898–1902	14.79	13.06	4.92	14	32.91
1903–1907	16.47	18.04	5.74	17	40.42
1908–1912	16.78	20.45	6.02	23	43.42
1913–1917	15.40	10.33	6.53	42	28.60
YEAR					
1918–1919	——	——	——	——	21.93
1919–1920	16.29	10.08	6.44	77	33.52
1920–1921	5.47	11.14	6.31	51	23.43
1921–1922	6.39	17.77	4.46	86	29.68
1922–1923	7.10	15.06	6 06	80	29.02
1923–1924	8.65	21.94	5.84	1.27	37.70
1924–1925	9.55	22.95	4.54	1.18	38.22
1925–1926	9.66	19.96	3.85	2.40	35.87
1929–1930	9.2	27.00	4.4	——	45.19
1930–1931	6.0	23.00	2.9	——	34.70
1932–1933	7.25	——	2.01	——	31.5

The government and two official bodies collect certain levies upon exports of both raw and manufactured jute as follows:

(1) On Raw Jute and "Rejections" (which are coarse raw jute)			
(per bale of 400 lbs.)	Government	Rs. 4–8–0	per bale
	Port Commissioners	0–3–7	per bale
	Calcutta Improvement Trust	0–2–0	per bale
	Total	Rs. 4–13–7	
(2) On cuttings (roots and tips)			
(per bale of 400 lbs.)	Government	Rs. 1–4–0	per bale
	Port Commissioners	0–3–7	per bale
	Calcutta Improvement Trust	0–2–0	per bale
	Total	Rs. 1–9–7	per bale
(3) On Sacking (per ton of 2240 lbs.)	Government	Rs. 20–0–0	per ton
	Port Commissioners	1–4–0	per ton
	Calcutta Improvement Trust	0–12–0	per ton
	Total	Rs. 22–0–0	per ton
(4) On Hessians (per ton of 2240 lbs.)	Government	Rs. 32–0–0	per ton
	Port Commissioners	1–4–0	per ton
	Calcutta Improvement Trust	0–12–0	per ton
	Total	Rs. 34–0–0	per ton

Raw jute is delivered to the Indian mills mainly by boat, since, as already stated, nearly all mills are located on the banks of the Hooghly River. It is unloaded by a crane, brought in on track cars and stored by a contractor who furnishes his own men and is paid

so much per *maund* or per bale. The jute is weighed and examined upon receipt and here again the opportunity for bribery crops up. Mills often buy large quantities and hold them for future needs, the amounts in their warehouses being something of a secret. Full information as to quantities bought, on hand and sold as manufactured, would reveal more than the manager cares to show of real earnings. In some mills, it would also indicate whether the provisions of the Association's agreement as to short time had been kept and whether the stipulations of the Factory Act as to hours had been observed.

The manufacture of jute fibers into coarse cloth by hand spinning and weaving is a very old industry in India. People who did the weaving often grew the plant and were set apart as a separate caste.[11] In Bengal people of the sack-weaving caste are called *Kapalis,* and are divided into two groups, those who weave the bags and those who sell them. The latter are socially superior, though they still marry, when unable to do better, among the weavers. Even among weavers there have been divisions and 100 years ago Buchanan found one group[12] "careful to explain that the shuttle is shot with the hands . . . and not driven by pedals, as with the outcaste Jogis." Besides these specialists Hindu widows in Bengal, always consigned to the lowest possible positions, were often engaged in this work.

With the growth of modern commerce there was a greatly increased demand for packing materials. "The gunny bag trade rapidly became a recognized part of the Bengal peasants' work."[13] From 1795 onward a considerable quantity of the woven material was being exported. By 1825–6 the total was over 1,000,000 pieces, of which America took nearly 200,000. In 1829–30 the export rose to 9,000,000 pieces.[14] At least as early as the 1840's it was being used in America and also in Western India as covering for bales of raw cotton. More than 9,000,000 pieces, worth over Rs. 2,000,000 (or 11¢ per piece), were shipped from Calcutta in the year 1850–1,[15] of which two thirds went to Western India and North America, and the balance mainly to various Asiatic ports.

[11] See Riseley, *Tribes and Castes of Bengal,* Articles on the *Kapali.*

[12] Buchanan's *A Journey from Madras through the Countries of Mysore, Canara, and Malabar* (for the East India Co.), London, 1807, I, pp. 226–7.

[13] Riseley, *loc. cit.*

[14] *Parl. Papers,* 1831–2, X, Pt. II, pp. 866–8.

[15] See Wallace, *Romance of Jute,* p. 10.

In one or two districts of Bengal the weaving of jute by hand is still a small industry. It was reported in 1924 that six merchants were shipping out about 400,000 rupees' ($133,000) worth annually.[16]

About 1795, the fiber was first sent to Europe for experimental purposes by the representatives of the East India Company, in the hope that it would provide cordage material for the Company's ships. From about 1825 there was considerable experimenting with it in Dundee by persons engaged in the power manufacture of flax and hempen goods. At first, flax and tow were mixed with it to soften the fiber. In 1832 it was softened by the use of whale oil and in 1835 pure jute yarn was thus being produced. Power-weaving must have begun almost immediately, since in 1838 the Dutch government purchased large quantities of jute bags in Dundee for the carriage of coffee.[17]

The industry continued its gradual growth in Dundee for some fifteen years, impelled by the continued growth in the demands of commerce for packing materials, and then received a great impetus through the failure of the supply of hemp from Russia during the Crimean War. The British Isles had thus taken over another Indian textile industry and placed it under power machinery and the factory system.

With the perfecting of its machinery and organization, and the increasing ease of communications, this industry, like cotton manufacturing, coal mining and railway transport, migrated to India at the beginning of the second half of the 19th century. Growth was slow until about 1875 when careful observers still doubted its ultimate success.[18] Its development became, however, more rapid and at the turn of the century it began to expand towards the magnificent dimensions which it exhibits today.

The Mills. The first jute mill in India was built in 1854 by Mr. George Acland, an Englishman, who had left the British navy to settle in Ceylon. Here he achieved some success as a coffee-planter, and also became a member of the Legislative Council. Of an

[16] See *Report on the Survey of Cottage Industries in Bengal,* 1924, p. 101.

[17] See *The Investor's Indian Year-Book,* 1926–7, pp. 175–182, for an excellent review of this period written by Sir Alexander Murry, Kt., recently President of the Bengal Chamber of Commerce. See also Watt's *Economic Products of India,* II, pp. 534–562, and Wallace, *The Romance of Jute,* Ch. I.

[18] See Helm, *Journal of the Society of Arts,* London, May 7, 1875, p. 551.

adventurous disposition, he went to Bengal and undertook experiments with rhea grass which he hoped would supersede flax and hemp. In Scotland he was advised by a manufacturer of jute machinery, Mr. John Kerr, to take jute machinery, which had then been working successfully in Dundee for about twenty years, to India and manufacture jute where it was produced.

With some Dundee mechanics Acland erected a building on land at Rishra,[19] a few miles up the river from Calcutta. For two years the mill did only spinning and produced about 8 tons of yarn per day, which would now be worked up by some 60 or 70 looms. In 1857 hand-looms were introduced and the mill began to compete with the cottage sack-weavers.

Acland was always in financial difficulties and paid for his machinery in instalments over a number of years. Doubtless his experience with oriental labor on the coffee plantations of Ceylon inclined him towards risking the use of Indian labor in jute manufacture, but he never had marked success and soon left the business.

At the instance of another Scot, Mr. George Henderson, the second mill was started by the Borneo Company, which was primarily interested in trade and seems to have turned to jute manufacturing in order to utilize some of its idle capital. In 1859 the mill started both spinning and power-weaving. Unlike the Acland mill, it prospered from the first. Within five years it doubled its plant and within 13 years it had "cleared its capital twice over."[20] For some time it operated power-looms and hand-looms side by side, as some small cotton mills are doing now.

Two other mills were started in 1862, both by physicians, and in 1866 another by the Calcutta partners of a British trading concern. Between 1868 and 1873 these mills, except Acland's, were very profitable. They "simply coined money" and led persons who had been investing in tea and coal to turn to jute. A real boom set in; the shares for a mill could be sold in Calcutta during a morning. Five new companies started in 1874 and eight more in 1875. The number of looms (with spindles to provide them with yarn) rose almost at a bound from 1250 to 3500.

[19] The building was on land once occupied by the country house of the famous Governor General Warren Hastings. Part of the old mill stands today and is included in the Wellington mill.

[20] Wallace, *Romance of Jute*, p. 17.

Until this time the products, all bags, had been sold in India and Burma, but with the increased capacity there was need of going afield. The industry had been over-expanded, and in seven years only one new mill was started. Then came better markets abroad and five new mills were erected in the three years 1882–5. But expansions since 1875 had nearly doubled the looms, and there was serious depression in the trade. In an effort to regulate output the Indian Jute Mills Association was formed in 1884. Only one new mill was built during the next ten years, but well-managed companies continued to prosper and looms were increased to nearly 10,000. By 1900 there were over 15,000 looms at work and since that time the growth has been even more marked, namely, to 60,000 looms, in 1932 employing 263,000 workers.

With increasing business, products have changed. In the early days only coarse gunny bagging was produced. The hessian looms (for finer goods) first outnumbered the sacking looms in 1905, and now three-fifths are for hessians. This means that India is encroaching more and more upon the field long conceded to Dundee. Indian labor has so improved that Dundee's comparative advantage in finer goods is being reduced if not taken away. While Dundee specializes in the higher grade hessians, this is not because India cannot produce them but because, on account of her cheaper labor, she has a comparative advantage in coarser goods.

The table on page 245 shows the growth of the industry and the change to finer qualities during 70 years.

As already stated, the industry is practically confined to Bengal, there being only the equivalent of one average factory in five small factories in Madras and Bihar. There are 94 mills in Bengal, owned by about 60 companies, which, with the exception of three American companies, are managed by 25 different offices—generally by firms of managing agents. Some companies have several separate mills in the same compound.

Buildings are usually of one storey and are substantially constructed of brick, which is made cheaply (without straw) almost on the spot. The buildings are also covered over with cement and kept spick and span by annual coats of yellow paint. A single mill with all its buildings occupies a considerable area, often up to 100 or more acres. Mills commonly face the water-front and beside them stand the quarters for the European manager and

INCREASE IN NUMBER OF JUTE LOOMS, 1859–1930

	YEAR	SACKING	HESSIAN	TOTAL
June	1859	——	——	192
June	1869	——	——	950
April	1877	2,946	910	3,868
December	1885	4,900	1,800	6,700
January	1890	5,359	2,300	7,659
December	1895	6,584	3,117	9,701
January	1901	8,613	6,600	15,213
January	1905	9,736	11,409	21,195
January	1910	13,421	18,334	31,755
January	1915	15,751	22,603	38,364
January	1920	15,124	24,353	40,367
January	1921	16,445	24,453	40,396
January	1922	16,354	24,985	41,339
January	1923	17,452	28,111	45,563
January	1924	18,286	29,732	48,018
January	1925	18,344	31,055	49,399
January	1926	18,541	31,307	49,848
January	1927	19,353	31,001	50,354
January	1928	19,337	31,184	50,521
January	1929	19,502	31,534	51,036
January	1930	21,894	36,245	58,639
January	1931 *	——	——	——
January	1932 *	——	——	——
	1933	22,693	37,704	60,397

* No figures published.

European assistants. These are of similar construction, and very attractive. Generally, there are tennis courts, spacious lawns which, for a few rupees per month, the gardener keeps in luxuriant grass and beds of blossoming flowers. With tropical shubbery and tropical touches in the architecture these places are most inviting. Seen across the river or from a boat in mid-stream on a crisp morning in winter (which corresponds to early fall in New England)—a line of not too heavy smoke floating away from the great chimney, and the whole tropical setting mirrored in the glassy waters—the mill and its quarters present a picture not soon forgotten.

Naturally the back-yard is less elaborate but it is well constructed and well kept. It contains the warehouses, quarters for the hands, often better ones for the clerks, and great stretches of one-storey buildings for the machinery. In the better mills, court-yards about both the factory and the workers' quarters are paved and kept clean by a liberal use of hose water. Usually there are large "tanks" or ponds for storing river water for the boilers. Often there are others into which the workers plunge as they emerge from

the mill.[21] Many mills, generally those located away from the city or from villages, provide housing for nearly all their hands. Some of the city mills furnish few or no quarters for their hands who live in rented houses outside, usually nearby. In some mills, especially to the south of Calcutta, where Bengali laborers are more common, the workers come in from their villages at distances up to seven or eight miles.

An average mill employs about 4,000 Indian laborers. If there are three or four mills in the same compound there may be 15,000 hands, all working for the same concern. A typical mill has between 15 and 20 European assistants, one to every 200 or 300 Indians; these are almost invariably Scotsmen, poor boys from the farms and towns about Dundee, who have learned their business in that mother of jute manufacturing. Some succeed but promotion has become more and more difficult. Over them is the manager and one or two chief assistants. Usually there are a number of European women on the compound, the wives of the managers or of the assistants. Like other British in India, however, the jute *wallahs* often leave their families—especially their children—at home. It is not at all uncommon for a mill assistant to see his family only at the end of a three-year period when he goes home to Scotland on a short holiday. At best there is a good deal of separation for short periods. It is said of one of the conspicuous "jute millionaires" that he brought his wife out on his first trip as a young man, but that she stayed only a few weeks and returned to the United Kingdom, not coming back to Calcutta during the thirty odd years her husband spent in building up his fortune.

Over the executive group at the mill is the firm of managing agents. One or two of the firm's representatives, depending upon the number of mills controlled, are mainly responsible for the supervisory management. They work hard and efficiently and several have acquired fortunes. Nearly always they have come up through the mills and know all the processes. They sometimes live on the compound, where, until recently, the whistle blew at 4:30 A.M. and the machinery started an hour later. Often an agent was up and away before daylight for the inspection of two or three

[21] This is a great boon in the Indian climate where perspiration, oil and jute dust make an unpleasant mixture. In the provision of bathing facilities for factory workers, however, the Japanese have led the world. The Indian worker has been helpless and most of such amenities have been denied him, but several of these big swimming pools have lately been constructed by jute mills.

mills. He then returned to his "bungalow," had a bath and breakfast, and went to the office of the managing agency where during the balance of the day, frequently with only "tea" for lunch, he worked over the correspondence, the books and the problems of the various mills. Hours have now been changed in most mills but hard work has become a habit with the jute *wallahs*.

Until the last few years, too, the hands were divided into three shifts and with the exception of weavers, all worked nine to ten hours, as did the foreign supervisors.

A mill is arranged in departments, according to production stages. The principal of these are batching, preparing, spinning, weaving, and finishing. In the first the jute is torn apart, mainly by machinery, mixed and, at the same time, soaked in an oily preparation to make it pliable. This is rather heavy work but in India both men and women perform it.

Preparing corresponds to the same processes in a cotton mill. The material is first put through cards the even feeding of which is very important, for upon this depends the evenness of the strand, which, after drawing, combining and redrawing, is to be spun into a single thread. Women often feed this machine and also receive the product at the delivery end. The drawing frames are also worked by women, but from roving through spinning, weaving and finishing, nearly all the work, with the exception of winding, is done by men. Spinners are generally young men, though a few women and old men are employed. It is in this department that nearly all the children are employed as "shifters"—that is, to shift the filled bobbins from the spindles and to put the empty ones on. They work in groups under a *sirdar,* or foreman, who keeps them hustling. The shifting must be done quickly for with bulky material such as jute, the bobbins fill fast and require frequent changing, which necessitates stopping the machines. The time lost from spinning by stopping the machines for various purposes—such as shifting bobbins, splicing yarns, breakages—may amount to an important percentage of the working day. To reduce this time lost in stoppages, some German mills use various devices, one of which causes the whole set of filled bobbins to swing out and an empty set to swing in, enabling the machine to continue spinning immediately. Another avoids trouble with breakages. An independent motor on each spindle automatically stops the spindle when its thread breaks; thus tangling of the thread, consequent breaking of a whole

group and disruption of the entire frame is avoided. With the greater speed attainable and less loss of time by stoppages this machine is said to produce 70 per cent more, but because labor is cheaper than machinery, it is not used in India.

Children work in gangs of ten or twelve, shifting a set of about 72 bobbins in one to two minutes. Their entire working period is six hours with an interval of at least half an hour for complete rest (unless the Factory Law is broken). Women and children may not work before 5:30 A.M. or after 7 P.M., and more than eleven hours per day or sixty hours per week is prohibited for both women and men.[22] Some modification of this latter rule has been allowed for men in the weaving departments of the mills, who, with irregular reliefs, have had charge of their looms for 13½ hours. On narrow looms four men form a group, relieving one another for meals, etc. On broad looms an extra man is furnished for each four looms—sometimes by the company, sometimes by the men—who relieves the four weavers in turn. This means that five men tend 4 looms for 13½ hours, or slightly less than 11 hours each per day. The factory inspector apparently pays little attention to the hours worked by weavers, all of whom are grown men. In other departments where younger persons and women and children are employed the inspectors are more strict.

The shift system, instituted in the 1870's was first applied to children and later to women, especially after their hours were reduced to 11 by the Factory Act of 1891. With the coming of the electric light in the '90's the shift was extended to most of the hands except the weavers.[23] According to this system, which is described in the chapter on Labor Sources and Laboring Conditions, the mill operated continuously for 13½ hours, but this time was divided so that each person worked during two thirds of the whole, that is, for 9 hours, broken up into two or more parts. In a few departments, such as bag sewing, where operatives were independent of the main mechanical system, a single shift at piece rates was employed.

Generally a number of workers were required to be present for both the early morning and late evening shifts. While they secured rest during the day, they were nevertheless tied to the mill from 5:30 A.M. to 7 P.M., and when living at a distance from the mill

[22] A recent Act introduced by the government reduces the hours to 54 per week for adults and makes other improvements.

[23] See evidence of Mr. D. R. Wallace, in *Parl. Papers*, 1909, Cmd. 4519, p. 252.

they were often away from home from 4 or 4:30 A.M. until 8:30 or 9 P.M.

The system always caused trouble to the factory inspectors, because of the great temptation to a foreman or manager, when short of hands in one set, to bring in persons, illegally, from another. Although in operation for sixty years, we find the factory inspector in 1927 writing of [24] "the great difficulties in administering the Act in multiple shift mills and the inefficacy of prosecution in remedying the evils of irregular employment. . . ." In another report the same official states that [25] "managers have given ample proof of their diligence to comply with the Act with respect to the labor they control, but they plead their helplessness to remedy matters under the multiple shift system," adding that, "the remedy does not lie with the persistent use of Inspector's powers of prosecution, but in the prohibition of the system which makes evasion of the Act possible."

One man, who spent his life in this industry and was at one time president of the Jute Mills' Association, says that it was adopted "to deceive the factory inspector." In any case, it provided a fairly satisfactory means of getting the maximum from the mechanical equipment without working a regular night shift or (necessarily) more than the legal number of hours.

Even when "short time" was adopted, and this has been characteristic of the jute industry at intervals almost since its inception, it was attained not by shortening the number of hours worked per day, but by reducing the number of days in the week. After the post-War boom, at the instance of the Jute Mills' Association, its members undertook to work only 54 hours per week, that is, two-thirds time. Gradually this has been adjusted in all but a few mills to a single shift system which is now all but universal, resulting unfortunately in the complete dismissal of several thousand hands and in a short but serious labor dispute.

One of the largest and best managed mills circularized its neighbors to the effect that besides a saving of Rs. 16–2 per ton in manufacturing costs (equal to perhaps Rs. 30,000, or $10,800, per month) it had experienced the following gains by adoption of the single shift day:

[24] See *Annual Report on the Working of the Indian Factories Act in Bengal and Assam for the year 1927*, p. 26.
[25] *Ibid.*, 1926, p. 8.

1. Three per cent increase in factory (through spinning) production.

2. Some increase in mill (weaving) production over factory production, which has allowed us to reduce the dollop on some systems thus relieving the previous over-loading of preparing machinery and consequently giving better yarn now.

3. Twenty-two per cent increase in European supervision. The working hours of the European staff under the old system amounted to 38 hours in a 54-hour week of four days, whereas their working hours are now 46½ hours in a 54-hour week of five days.

4. About thirty-three per cent reduction in the quantity of "outweight" hessian cloth (*i.e.*, weights which cannot be packed as standard under our present rules).

5. Seventy per cent reduction in the amount of damaged cloth.

6. A cleaner floor in the Finishing Department—that is, less goods lying around awaiting attention. The production as it comes forward is baled sooner than before.

7. A distinct general improvement in works operation, much of which was noticeable immediately on changing over to single shift.

8. Relatively more workers accommodated in the company's *pucca* lines and less in unsanitary neighborhood *bustees*.

The cost of manufacturing is reckoned per ton of output and varies widely with the qualities produced and the efficiency of the mill in question. There is no loss in weight by manufacturing, the oil added making up for any wastage of fiber. Actual manufacturing expenditures, without allowance for depreciation or investment, vary from around Rs. 100 per ton for coarse sacking to Rs. 250 per ton for high-grade hessians. In 1927 in a good mill the conversion cost for sacking was about Rs. 125 and for hessians about Rs. 190. Nearly fifty per cent of the total is for workers' wages, while another ten per cent goes to salaries. The various items in percentages were as follows:

PERCENTAGES OF VARIOUS ITEMS IN CONVERSION COSTS IN A CALCUTTA JUTE MILL IN 1927

Dressing materials	2.5
Batching oil	5.99
Lubricating oils	1.4
Coal	5.13
Power	3.17
Sundry stores	8.98
Weekly wages	40.5
Monthly wages	6.05
Salaries (European staff)	11.0
Boating	.79
Baling materials	1.22
Repairs and replacements	5.07
Brokerage	1.46
Insurance	1.77
Incidentals	4.82
	100

At this time the prices of raw jute and woven goods were such that after meeting these manufacturing charges, about Rs. 125 remained to apply on depreciation and dividends, or about Rs. 1,500 per loom per annum.

The capital expense of building a mill has varied greatly. In the early years some were built for as little as Rs. 4,000 per loom; one mill registered in 1912 with 400 looms showed a block expenditure of just over Rs. 2,000,000, that is, Rs. 5,000 per loom. Since then, on account of the advance in the value of land and in the cost of building and machinery, this figure has risen markedly. Good sites are very scarce and expensive, and before the present depression the cost of erecting a new mill was placed all the way from Rs. 7,000 to Rs. 10,000 per loom. One manufacturer adds Rs. 3,000 more per loom for working capital.

Between 1875 and 1890, earnings were irregular and for some mills very poor; after the turn of prices about 1900 they were fair, and from the World War until 1930 they were good. Recently, with the falling price of products, the industry has been so depressed that, in spite of hours being reduced to some forty per week, and weeks operated to three per month, profits have fallen—even disappeared—for many mills. The total paid in profits in 1931 was under Rs. 10,000,000 as compared to Rs. 26,500,000 in 1930 and Rs. 72,300,000 in 1928.[26] The earnings of three of the companies noted for their prosperity during these years were as follows: [27]

DIVIDENDS * PAID BY THREE OF THE OLDER JUTE MILLS, 1880–1900

YEAR	BUDGE BUDGE REGISTERED 1873 PER CENT OF CAPITAL STOCK	FORT GLOSTER REGISTERED 1874 PER CENT OF CAPITAL STOCK	GOUREPORE REGISTERED 1876 PER CENT OF CAPITAL STOCK
1877	——	7	——
1878	——	4	——
1879	——	0	——
1880	——	0	——
1881	11¼	0	——
1882	21¼	10	——
1883	17½	5	——
1884	2½	0	3
1885	0	0	0
1886	0	0	3
1887	5	0	12

* For some of the periods of high earnings during and after the War the figures here shown were increased by the addition of bonuses.

[26] *Review of the Trade of India*, 1930–1.
[27] *Investor's Indian Year Book*, 1914–1926-7, and *Capital*, Calcutta.

Year	Budge Budge Registered 1873 Per Cent of Capital Stock	Fort Gloster Registered 1874 Per Cent of Capital Stock	Gourepore Registered 1876 Per Cent of Capital Stock
1888	10	0	20
1889	10	7	17
1890	12½	9	14
1891	32½	13½	13
1892	10	5	8
1893	13¾	6	10
1894	10	3	10
1895	18	20	16
1896	8	7	6
1897	4	13	0
1898	13	17½	10
1899	8	8	10
1900	9	7	10
1901	17	7	10
1902	10	8	10
1903	7½	8	10
1904	14	10	10
1905	14	17	14
1906	18	25	12
1907	25	18	12
1908	20	10	12
1909	20	10	10
1910	20	10	10
1911	4	5	0
1912	4	13	20
1913	8	15	30
1914	7½	10	5
1915	16	55	50
1916	70	90	90
1917	65	62.3	60
1918	215	180	300
1919	110	150	220
1920	132.5	200	250
1921	45	62.5	20
1922	42	120	40
1923	60	120	80
1924	55	160	100
1925	55	135	110
1926	38	30	20
1927 *	70	140	100
1928 *	90	50	60
1929 *	60	70	50
1930 *	27	15	27½
1931 *	20	10	Nil.
1932 *	15	10	10
1933 *	7½ †		

* From *Commerce*, Calcutta, May 14, 1932.
† First half-year.

Two labor leaders from Dundee who studied conditions in Calcutta in 1924–5 were much shocked at the "scandalously low" wages and the "simply staggering" profits. Their calculations led them to conclude that during the decade, 1915–24, the jute mills

earned 90 per cent per annum on their capital, and that "the average annual profit is eight times the wages' bill." [28]

There is no denying that the jute mill owners did very well for many years prior to the present depression. It is doubtful if any other group of factories in the world paid such handsome profits between 1915 and 1929. But these high earnings are not constant, and in some cases a part was required to balance up the poor returns in the "nineties" and the first decade of the twentieth century. In so far as they resulted from deliberate limitation of the supply of jute manufactures through short time, these earnings are more open to question. Indian mills have in cheap labor and proximity to the source or raw material such advantages that they can quote prices well below what most of their competitors are able to meet; and a goodly share of their profits are due to their success in frightening away would-be competitors. Yet many mills have been set up, especially in Germany.

The jute mills are a great monument to Scottish enterprise and Indian labor. While Indians have furnished the land and labor for growing, and the labor for manufacturing, Scotland has furnished the brains and the careful oversight. Capital has been built up mainly from earnings. Americans have invested several million dollars and they now control at least three large mills. Besides making handsome earnings, the jute mills are worth far more than the books show, having been enlarged and improved, provided with great stocks of materials, and in some cases with such reserves as would allow the payment of good dividends even though the mills should burn to the ground.

From the capitalist's point of view the jute manufacture is the best organized industry in India. The Indian Jute Mills' Association was organized in the 1880's and has been active and effective ever since. A dominant power in the world supply of jute manufactures, the group of mills on the banks of the Hooghly has been in an unusual position for concerted action. While there has been little coöperation regarding matters of mill operation, the mills have frequently coöperated in the limitation of output through short-time operation. And there has been common action toward labor

[28] *Exploitation in India*, by Thomas Johnston, M.P., and John F. Sime, Secretary, Dundee and District Union of Jute and Flax Workers, pp. 5–6.

in recent years when serious labor trouble first broke out in the industry.

Generally there has been a minority outside the Association and recently some American mills have been in this group. Indeed, in 1932 there was a severe contest between the Association and the outsiders and it appeared for a time that the organization would perish. However, through the genius of an able leader an agreement was at last reached between the two groups. The Association members agreed to work 40 hours per week and to seal up 25 per cent of their looms while the non-Association mills were to be allowed a 54 hour week with all their machinery running full time. In final analysis the trouble is due to over-expansion. The newer mills, built at high prices, are battling to save themselves from bankruptcy and are therefore too anxious to take advantage of the better prices created by the short-time operations of their competitors.

From the Indian point of view it is still unsatisfactory that this industry is so largely owned and almost wholly directed by non-Indians. While from one half to two thirds of the shares are now owned by Indians, almost no progress has been made towards taking over the management. In no mills are Indians being trained, as they have been in the Bombay cotton mills, to carry out alone the whole process of manufacture. Nevertheless, a small beginning is being made. Indians are becoming more confident of their own industrial capacities and another twenty-five years may witness their definite control over this Scottish stronghold.

CHAPTER XII

COAL AND COAL MINING

ALTHOUGH coal has been known since ancient times and is one of the most essential commodities of modern economic life, it has only recently been produced on a large scale. In the oriental countries its exploitation began late and in India came only after the settlement of Europeans. Indeed, not until two centuries after their settlement there did even Europeans pay any attention to coal mining. The Indians used wood and dried cow-dung cakes—"cow-chips" they were called on the American prairie—as fuel for cooking, and, as in Europe, charcoal, in the working of metals.

The first person to undertake coal mining appears to have been the (British) magistrate of Chota Nagpur, serving under the East India Company. In 1774 this Mr. S. G. Heatly, together with a Mr. John Sumner, applied for and obtained from Warren Hastings, then Governor-General of Bengal, the privilege of mining coal in "Pachete and Birbhum," [1] about 125 miles northwest of Calcutta. Later a Mr. Redferne joined them in the exclusive right to mine and sell coal in Bengal and its dependencies. For this privilege they agreed to pay one fifth the value of all coal mined and to furnish the East India Company government with ten thousand *maunds* (about 400 tons) per annum for five years. In 1775 some of this coal was delivered and Mr. Heatly had six mines in operation which in 1777 produced 90 tons of coal.[2] The coal was, however, of very poor quality, only half as good as English coal which had been regularly imported for use in various shops operated by the Company. Heatly was transferred to another district and his mining venture came to naught.

The Company found it cheaper to carry coal by sailing ship from England around the Cape than to mine and use Indian coal. But in 1814, at the suggestion of Warren Hastings, then retired, a mining

[1] *Bengal District Gazetteer,* XXIII, p. 128.
[2] Mr. Stoner, former Chief Inspector of Mines in India, in *Transactions, Institute of Mining Engineers,* XXVIIII, p. 539.

engineer named Jones was sent from England to investigate the coal resources of India. So impressed was Mr. Jones by the prospects that he induced the Indian Government to make him an advance of Rs. 40,000 and undertook mining on his own account. At the same time at least one Indian business man was bringing coal down to Calcutta by boat.[3] Mr. Jones opened a mine at Raniganj which has remained open and has given its name to the chief coal field of the country. Unfortunately, he soon died and a Calcutta firm which had acted as guarantor[4] was forced to make good and take over the property. By 1831 this Company was mining annually 14,000 to 15,000 tons of coal and carrying it by boats to Calcutta. Steam power was used and a seam about nine feet thick and about ninety feet beneath the surface was worked.

The success of this mine led to greater activity and several mines were opened in the Raniganj coal field. Within a few years, however, the Calcutta firm failed and the Jones mine came into the possession of Babu Dwarkanath Tagore, said to be an ancestor of the poet, Rabindranath Tagore. A few consolidations resulted in the formation in 1843 of the Bengal Coal Company which took over the property and is today one of the principal mining companies in the country.

But the demand for coal was small. Only a few steam-engines were in use in India at the time, one being in the ill-starred Bowreah cotton mill. Steam tugs were used on the Hooghly at Calcutta and as early as 1831 the East India Company had coal sent to Singapore, Madras, Ceylon and Penang for its steamships.[5] The water in the Damudar River which carried coal down to the Hooghly was so shallow that it could be used only in the rainy season and then by very small boats.[6] Under such conditions progress was slow. In 1839 the output of coal was 36,000 tons and in 1846, 91,000 tons.

As in other branches of activity, the turn of the half century brought a new epoch for coal mining. The factory system and its auxiliaries began to appear. Not only did steam factories come to

[3] Watt, *The Commercial Products of India*, p. 333.

[4] Messrs. Alexander and Co., who a few years later advanced over 100,000 Rupees to a would-be manufacturer in Madras. See below, Chapter XIII. See *Bengal District Gazeteer*, XXIII, Burdwan, p. 130. Also, *Parl. Papers*, 1831, Affairs of the East indian Co., V, p. 19.

[5] *Parl. Papers, 1831*, Affairs of The East India Co., V, p. 18, Q. 304.

[6] The boats used carried on an average only ten or twelve tons. *Ibid.*, Qs. 301 and 321.

consume coal but rail transport was provided between Calcutta and Raniganj in 1854.

By 1860 fifty collieries were at work in the Raniganj field and in 1868 over 99 per cent of the half million tons produced came from it.[7] The total production of the country in 1880 was about 1,000,000 tons, in 1900 it was over 6,000,000 tons, in 1912 over 12,000,000 and in 1917 just under 22,000,000 tons.

Since then production has varied, but in 1928–9, it reached a record with 22,308,174 tons.[8] With the exception of Japan, which produces thirty to fifty per cent more, India is the largest coal producer in Asia.

The coal resources of the country are large, estimated at over 54 billions of tons in 1924[9] (as against 189½ billion tons for Great Britain and 8 billion tons for Japan). Deposits are rather widely scattered but in only a few places are they really good—principally in Bengal and Bihar and Orissa. This area lies between 120 and 200 miles northwest of Calcutta, and from it comes ninety-five per cent of the total coal mined. There are also considerable deposits in Assam, Central Provinces and Hyderabad (Indian) State. The Raniganj field is the largest and was long the leading producer, but since 1895, the Jharia field has been developed and has now outstripped its rival. There are also three smaller fields nearby. Production in the different British Indian fields in recent years is indicated in the table on page 258.

The first five of the fields listed in the table are in the two provinces of Bengal and Bihar and Orissa.

The Raniganj field is about 500 square miles in area and contains some 518 million tons of "first-class" coal in seams varying from 10 to 18 feet in thickness, 360 million tons of medium class coal in seams varying from 12 to 20 feet in thickness, and thousands of millions of tons of second-class coal.[10]

The Jharia field lies 16 miles west of the Raniganj; within about

[7] Statement by a Deputy-Superintendent, Geological Survey of India, in *Journal of the Society of Arts*, April 11, 1873, p. 389.

[8] *Annual Report of the Chief Inspector of Mines in India, for 1929.*

[9] Dr. Fox, an official of the Geological Survey of India. See *Report of the Indian Tariff Board regarding Protection to the Steel Industry*, 1924, p. 96. A later "conservative estimate" puts this at 36 billion tons, but states that four-fifths of it lies too deep for profitable working under present conditions. (Sir Edwin Pascoe, Sc.D., Director, Geological Survey of India in *Bulletin of the Imperial Institute*, XXIX, No. 2, July, 1931.)

[10] *Memoirs of Geological Survey of India*, XLI, Pt. I.

COAL PRODUCTION BY FIELDS

	IN 1927*	IN 1929†	PERCENTAGES OF TOTAL PRODUCTION	
	Tons	Tons	1927	1929
Jharia	10,583,487	10,785,745	51	49
Raniganj	6,472,036	6,828,053	31	31
Bokaro	1,790,594	2,118,703	9	10
Giridih	855,253	771,165	4	3.5
Karanpura	262,014	467,127	1	2.
Pench Valley	505,913	680,270	2.5	3.
Assam	322,517	321,545	1.5	1.5
	20,791,814	21,972,608		

* *Annual Report of the Chief Inspector of Mines in India*, 1927.
† *Ibid.*, 1929, p. 8.

150 square miles are 18 seams varying in thickness up to 100 feet which contain a total of 480 million tons of good coal besides a large amount of poor material.

Only a few miles further west lies the Bokaro field covering 220 square miles and having thick seams of high-grade coking coal. One of its seams varies from 75 to 120 feet. Since 1919 when it obtained railway connection, this region has developed rapidly. Over 90 per cent of the total production in 1927 was from these three fields. Karanpura lies just west of Bokaro and has a large amount of coal. The other chief field in this region is the Giridih, which contains a smaller deposit of good steam coal, owned and under development by the East Indian Railway Company. Other important fields are the Pench Valley, Mohpani and Bellarpur in the Central Provinces, the Singareni field in Hyderabad and the Makum field in upper Assam. In the last-mentioned field the principal seam varies from fifteen to eighty feet in thickness. Worked by the Assam Railway Company, the mine is connected with the Brahmaputra River, about 75 miles distant, by a railway built in 1881 and facilitating its exploitation on a large scale. So fortunate are conditions here that until 1919 work was still being carried on in areas from which water flowed by gravity.

The quality of India coal leaves something to be desired. Nearly all is bituminous and its calorific value is not high. The amounts of moisture and of ash are large and there is a comparatively small amount of good coking coal, so important in iron and steel manufacture. Most of the coking coal is in the Jharia field. Elaborate

analyses and calorific experiments show that in the two principal fields the qualities of coal are as follows: [11]

CONSTITUENTS OF COAL

	Ash	Moisture	Volatiles	Free Carbon	Calories
Indian Coal					
Average of 32 collieries working Dishergarh-Poniati	9.74	3.92	30.77	59.49	7,236
Average of 18 collieries working Selected Jharia	11.70	1.32	24.30	64.00	7,431
Natal Coal					
Average of Natal collieries . .	10.03	1.39	21.08	67.50	7,487
Transvaal Coal					
Average of Transvaal collieries	16.06	2.94	25.23	55.77	6,440
Japanese Coal					
Average of 14 collieries . . .	10.59	2.12	39.88	47.41	7,116
Australian Coal					
Average of two samples . . .	8.28	1.94	29.42	60.36	7,710
Sample landed in India by Messrs. Mackinnon, Mackenzie Co	11.00	2.46	58.55	30.45	7,278

An American mining engineer who has had much to do with the development of the Indian iron and steel industry says that, "what is called first-class coal in the Bengal field rarely contains less than 12 per cent of ash." The coking coal used by the Tata Iron and Steel Company contains 17 per cent ash [12] and only seven per cent of the total deposits of coal are coking coal.[13]

Mining conditions, on the other hand, are exceptionally favorable. The seams are often from fifteen to thirty feet thick, close to the surface and very moderately inclined. Much of the earlier working was accomplished by following the out-croppings of thick seams into the earth. Large amounts are also taken by merely stripping off the surface.

In certain fields volcanic disturbances have resulted in numerous breaks and in considerable damage from the igneous material which was forced through the seams and burned them. Most of the mines are also fairly dry during most of the year as both roofs and floors are solid. The Assam mines are in a region of heavy rainfall but, as already noted, much of the mining has been on seams sufficiently high to allow for natural drainage.[14] During the

[11] *Report of the Indian Coal Committee*, 1925, I, pp. 25–6.
[12] J. Coggin Brown, *Bulletin of Indian Industries and Labour*, No. 36, p. 17.
[13] Sir Edwin Pascoe, *Bulletin of the Imperial Institute*, XXIX, No. 2, July, 1931.
[14] This is fortunate, for sulphuric acid in the water hinders pumping from the lower depths.

monsoon season there is much water to be removed but on the whole this is not a great problem. The mines are shallow; most of them are under 500 feet in depth, and only one or two as deep as 1500 feet.

At one place in the Jharia field, within the first 402 feet below the surface there are about 105 feet of good coal in five seams. Generally, thick seams are counted an advantage by miners, but in India they are often too thick. The length of props required for supporting the roof is so great as to make the removal of all the coal almost impossible. In a few mines hydraulic stowing has been employed for many years; but this practice is uncommon though many mines are favorably situated for its use. Hence the "bord and pillar" system of mining is used and much the larger share of the coal is left standing in pillars, sometimes as large as 100 feet square. These are usually partly removed later and over great areas the surface is allowed to settle. In this process, about one-third of the coal is totally lost. The great weight on these pillars, as well as the character of the coal, frequently results in crumbling and falls dangerous to the miners. It also leads to spontaneous combustion and fires become so serious as to endanger entire areas. In some fields the cave-ins are suggestive of great canyons and the escape of smoke and steam through crevices is so like smouldering volcanoes and so dangerous that not only is mining impossible but there is great danger to life and property in the neighborhood. These dangers become intensified as the mines are worked to greater depths.

Some operators own both the surface and the mining rights, but usually the land has belonged to Indian landlords or *zemindars* who have leased the mining rights for which they are commonly paid an initial amount, called *salami,* plus a royalty on all coal mined. This system and the dishonesty practiced on ignorant owners or lessees have resulted in certain very wasteful projects. In many cases, "the areas let off for working by the landlords have not been so arranged as to conduce to the economical working of the estate as a whole, but rather with the object of receiving as much as possible by way of *salamis.*" [15]

In the development of smaller areas, too, many more pits have

[15] R. I. Treharne Rees, *Report on the Methods of Coal Mining in India.* Made to Secretary of State for India, 1919, p. 2.

been sunk and much more machinery used than necessary. Sometimes this was due to the fact that although the coal was near the surface, the advisers had interest in the sale of mining equipment. This situation has been much improved in recent years by the installation of electric power.

Equipment in many mines remains old-fashioned. In many open pits coal is carried hundreds of yards up steep grades on women's heads. "Gins" (or capstans) operated by men, or more often, by women, were long the regular source of power, though ridiculously cheap coal was just at hand. From 1900 there have been large additions to the mechanical equipment, yet in 1913, 120 miles from Calcutta, a "gin" operated by women was still hoisting coal [16] and in 1927 the writer saw one being used to sink a shaft some 60 feet deep. In 1921 one-fourth of the mines had no mechanical power, and fifteen of this type employed over 200 laborers each. Equipment has been operated mainly by steam but so irregular has been the working that much of the machinery has often stood idle. Underground tracks have been placed only through the main alleys, to which coal is carried as far as a half-mile on the heads of women. Movement of cars within the mines, even up the inclines and out, has been accomplished to a large extent by human power. In 1890 one large mine introduced horse power for this purpose, not because horses were cheaper than women's labor, but because the manager of the mine feared that women were soon to be excluded from mines by legislation. Some generations of horses have come and gone but the women are still carrying on. In 1929 not a single mechanical conveyor was working underground in India though England had 100 in 1907 and 2100 in 1928.[17] The best mines, however, have always been equiped with up-to-date mechanical hauling apparatus within the mines and many have first-class equipment. In one of these the output per person in 1927 was double the average for Bengal and Bihar and Orissa.

Above ground the same lack of mechanical equipment prevails except at the best mines. Much of the coal is still carried on women's heads and stacked in heaps in the open air and rain until it is again put in baskets and carried by the same method to coal cars.

[16] Ball and Simpson, *Memoirs of the Geological Survey of India,* XLI, Part I, p. 125.

[17] J. Mackie, Vice President, Mining and Geological Institute of India, in *Capital,* Calcutta, Aug. 8, 1929, p. 327.

Recently there has been a great extension of electrical equipment. In 1907 an infinitesimal number of mines had electricity even for lighting. In 1923, twelve per cent of the mines in Bengal and Bihar and Orissa were using electricity for power and at the end of 1928 twenty-six per cent of the larger of these collieries were so equipped.[18] One instance is given of a single electric installation which took the place of thirty-eight scattered boilers, requiring fifty-six firemen and a large gang of mechanics. Poorer coal could be used and less than one-third the quantity was required.[19]

Coal-cutting machines are also fast coming into use, in spite of the lack of mechanical skill among the workers. As in Japan and other oriental countries formerly depending upon human labor, this has been the result of the War-time boom and the succeeding depression. In 1922, 40 machines were at work, in 1923,[20] 93, and in 1929, 173.[21] These are now introduced in all the fields and in an increasing number of mines, but this is a small number as compared to the number of human coal "cutters."

Ventilation has fortunately been very simple in Indian mines, only a few requiring artificial arrangements. Even now, the deepest are not more than 1200 to 1500 feet and, until about 1900, the greatest depth was 600 feet. In about 420 collieries in Bengal and Bihar and Orissa producing 95 per cent of the coal, there are only 47 mechanical ventilators.[22] There is very little fire damp and only 14 per cent of the underground workers use safety lamps. These simple methods have sometimes been used because of unprogressive management, sometimes because of lack of capital but mainly because, in view of the inexpertness of the workers in handling machinery, they were relatively efficient.

The costs of raising coal in India have compared favorably with those in other countries; indeed it is stated that they are the lowest in the world. A table furnished by the Indian Mining Federation, a body not likely to place the figure too low, shows a cost for 1924–5 of Rs. 4–10–0 ($1.67) at the pit's mouth.[23] The coal committee estimated Rs. 5 to Rs. 6 per ton and believed that this was 50 per cent over pre-War rates and 100 per cent over those of

[18] *Ibid.*, p. 326.
[19] *Ibid.*
[20] Penman, *Transactions*, Institute of Mining Engineers, LXVII, p. 351.
[21] Annual Reports of the Chief Inspector of Mines in India, 1927, 1929.
[22] *Ibid.*, 1927.
[23] *Report of the Indian Coal Committee*, 1924–5. Evidence, II, p. 121.

1905 to 1910.[24] Figures comparing the selling prices of coal at the pit's mouth in some leading coal producing countries for a number of years show India to have had the lowest prices of the group.[25]

PRICES OF COAL AT THE PIT MOUTH

	India		United Kingdom		Belgium		United States	
	Rs.	As.	Rs.	As	Rs.	As.	Rs.	As.
1901–05 Annual Average	2	11	5	14	8	1	4	7
1906–10 Annual Average	3	6	6	4	9	6	4	6
1911–15 Annual Average	3	5	7	8	10	7	4	9
1914	3	9	7	8	10	6	4	10
1915	3	5	9	6	11	8	4	8
1916	3	6	11	11	11	14	4	9
1917	3	11	12	9	16	2	8	4
1918	4	6	15	11	24	1	9	5
1919	4	8	20	8				

Costs in the Jharia field are admitted to be about R. 1 per ton less than in most other places. The rapid extension of mechanical equipment and the use of electricity may be expected to lower these costs further but more rigid labor legislation is a counteracting influence.

The market for coal has been narrow. Annual consumption per capita in certain countries is shown in the following table[26] with

	Year	Per Capita Consumption in Tons
United States	1926	4.72
Great Britain	1926	2.60
Germany	1926	1.43
Belgium	1926	3.96
Australia	1926	1.00
Canada	1926	2.85
New Zealand	1926	1.70
South Africa	1926	1.11
France	1926	1.74
India	1927	0.07

India ranking almost ridiculously low. In India, household use is restricted to a few Europeans for whom the demand, especially for

[24] *Report*, 1925, p. 34. The Committee's estimate of costs were Rs. 5 per ton for the Jharia and Rs. 6 for the Raneganj field.
[25] *Statistics of British India*, I, Commercial, 11th Issue, p. 96.
[26] *Indian Coal Statistics*, 1927, p. 8.

heating, lasts for a short season only. The industrial and transport demands have steadily increased and the eastern part of the country tends to attract fuel-using industries. Unfortunately Bombay and Ahmedabad, with their great cotton manufacturing industry, are so far away as to be almost out of reach. The water route is not direct and the rail route is long and expensive. It is not uncommon for the ocean freight alone from Calcutta to Bombay to amount to twice the pit-mouth price of the coal,[27] while by rail the charges were some two and one half times the pit-mouth price. In the west Indian markets, therefore, Indian coal meets sharp competition from South African and English coal.

Figures for consumption within the country throw interesting light upon fuel-using activities. While the development of manufacturing, especially of iron and steel, is enlarging the demand, railways still predominate, using over 31 per cent of the total. Cotton and jute mills consume only 9 per cent and the demand of the Bombay cotton mills has decreased with the development of the great Tata hydro-electric plant.

The total Indian consumption is distributed among different uses as follows: [28]

ESTIMATED INTERNAL CONSUMPTION OF COAL * IN PERCENTAGES OF TOTAL

	1926	1927
Railways	31.1	33.5
Bunker Coal	4.8	6.1
Admiralty and R.I.M. Accounts	.1	0.1
Jute Mills	4.6	4.3
Cotton Mills	4.4	3 8
Foundries and Engineering Works	21.7	24.2
Inland Steamers	2.6	2.9
Brick and Cement Works	2.3	2.6
Port Trusts	1.0	.9
Paper Mills	.7	.7
Tea Gardens	1.2	1.0
Colliery Consumption and Wastage	12.9	10.2
Other Industrial and Domestic	12.6	9.7
	100	100

* Estimates for 1929 place the percentage consumed in cotton mills at 6.7 per cent. Other figures vary little from those given here for 1927.

Generally there have been some exports and some imports of coal. The west coast, especially Bombay, Karachi and Ahmedabad,

[27] *Report of the Indian Coal Committee*, 1924–5, Evidence, III, p. 143.
[28] *Investor's India Year-Book*, 1926–7, p. 58, and *Indian Coal Statistics*, 1927, p. 5.

have better shipping connections with foreign countries than with the interior of India and coal has always been imported, principally from England and the African coast, often as ballast. In the first half of 1926 the average prices of the principal coals on sale in Bombay were [29] for Bengal coal Rs. 19–6–8, for Cardiff coal Rs. 24–6–1, and for Natal coal Rs. 19–8–7. Buyers consider Natal coal worth Rs. 2 per ton more than Bengal, which leaves the Indian producer in an embarrassing situation.

On the other hand, as there are good shipping facilities to other areas adjacent to Bengal, some coal has always been exported. The Straits Settlements and Ceylon have been the best markets; but the development of Japanese open pit mining in Manchuria and the numerous shipping lines along the Chinese coast have made it hard to retain the Straits market. Also during the past decade South African coal has been more favored in Ceylon. Neither exports nor imports are very large items but as marginal increments they affect the prosperity of the industry considerably. Figures for total production and exports and imports are shown in the following table: [30]

	Imports of Foreign Coal	Production of Indian Coal	Exports of Indian Coal to Foreign Ports
	Tons	Tons	Tons
1892–1895 (average)	705,000	2,758,000	42,000
1896–1900 (average)	333,000	4,750,000	305,000
1901–1905 (average)	205,000	7,627,000	369,000
1906–1910 (average)	344,000	11,823,000	775,000
1911–1915 (average)	427,000	15,440,000	771,000
1916–1920 (average)	44,000	19,356,000	620,000
1921–1925 (average)	777,000	20,010,000	182,000
1926	193,908	20,999,167	617,563
1927	243,608	22,082,336	576,167
1928–1929	190,542 *	21,972,608 †	641,266 *

* *Statistical Abstract for British India*, 63rd No.
† *Annual Report of the Chief Inspector of Mines, in India*, 1929, p. 8.

Recently the coal interests have agitated vigorously for governmental aid to the export business and after the report of the Coal Committee of 1924–5, railway rebates on export coal were increased by eleven annas (25¢) per ton and steps were taken to

[29] *Review of the Trade of India*, 1925–6, p. 24.
[30] *Indian Coal Statistics*, 1927, p. 29.

provide more effective mechanical handling as well as grading at Calcutta. Mechanical equipment is not yet completed and producers have complained much of the damage done by continuous handling, which breaks the coal and reduces it to slack. The coal from some mines also deteriorates very fast when stacked and exposed in the open air. Estimates for Calcutta are that from 10 to 30 per cent of a given slack is lost, and the Coal Committee of 1924–5 calculated an average loss on all coal on this score of 8 annas (18¢) per ton. This is due partly to slow shipment through lack of freight cars.

Another great loss is due to pilferage. As trains stop at stations, poor people steal coal. Perhaps two per cent of the coal shipped to Calcutta is thus stolen.[31] But this is by no means the end. Another estimate is that 50,000 tons are stolen annually at the Calcutta docks and converted into low-grade coke.[32]

The protectionist fever which "followed the influenza" in India did not fail to affect the coal interests. The proposals of the Indian Mining Federation were for duties up to Rs. 10 per ton on imported coal, a duty on fuel oil, and a bounty of Rs. 3 per ton on Indian coal exported,[33] but the Tariff Board was not convinced.[34]

Naturally those mining concerns which got control of extensive coal fields at low rates in the early days have been most successful. Coal mining still suffers from the over-extension of the War period and the Tariff Board was inclined to make this the central cause for the depression which the industry has recently experienced. In the two provinces of Bengal, and Bihar and Orissa, the number of mines rose from 555 in 1914 to 872 in 1924; 215 of which appeared after 1920.[35] This, together with enlargements of the former mines, doubled coal production between 1907 and 1919.

Profits have been singularly uneven. While a few companies have made really handsome earnings, others have been unable to pay any dividends, have indeed languished in bankruptcy. As shown by the following table, eight have paid large dividends regularly in

[31] *Report of the Indian Coal Committee*, 1924–5, p. 76.
[32] *Capital* (newspaper), Calcutta, Aug., 1929.
[33] *Application of the Indian Mining Federation for the Imposition of Protective Duties on Coal*, Gov't. of India Press, 1925, p. 9.
[34] One member dissented from the Board's conclusion on the ground that South African coal had an effective bounty of Rs. 5 per ton in reduction of shipping rates and that its principal rival was Indian coal. *Report of Indian Tariff Board regarding Grant of Protection to the Coal Industry*, 1926, p. 78.
[35] *Ibid.*, p. 24.

spite of the hard post-War years.[36] However, this tells only a part of the story, for about half the companies have paid scarcely anything for the past ten years.

DIVIDENDS OF EIGHT COMPANIES

COMPANY	QUINQUENNIAL AVERAGE OF DIVIDENDS PER CENT				DIVIDENDS PER CENT FOR YEAR								
	1901–5	1906–10	1911–5	1916–20	1921	1922	1923	1924	1925	1926	1927	1928	1929
A	37½	96	91	109	160	145	150	110	92½	60	60	50	55
B	17½	53	48	58½	65	65	57½	50	40	40	40	30	32½
C	17	36½	10½	40	17½	10	25	5	12½	—	15	15	17½
D	16⅛	25	16⅔	29	50	50	50	30	25	—	7	7	—
E	8	40½	36½	36	17½	22½	40	45	30	—	12½	7½	5
F	12	52	28½	45½	80	65	86	90	90	75	80	60	70
G	8½	32	42⅞	39⅛	71⅞	50	57½	57½	48¾	—	28	28	36
H	—*	54	62	46	85	60	60	60	60	—	60	47½	30

* The Company registered in 1905.

With the exception of the manufacture of cotton, the mode of industrial growth in India is fairly represented by the coal industry. Europeans provided the stimulus and have remained the most active and aggressive leaders. The largest and best mines, producing the bulk of the coal, are owned and operated by European companies. We have seen that two Europeans opened the first mine in 1774, that another European revived the business about 1815, and that on his death a European company continued this work. European companies, generally firms of managing agents in Calcutta, still operate the largest coal mines. The premier coal company of the country was controlled, however, by a board of directors rather than by a firm of managing agents from its origin in the '40's until 1908. In 1904 it was estimated by a chief inspector that 82 per cent of the total production was by European-owned companies; and that four of these companies mined 31 per cent of the total.[37]

The principal source of capital has been the trading community in Calcutta, especially the firms of managing agents. Recent years have brought a number of changes in ownership and, while there are no adequate statistics, Indians are in possession of a larger number of leases than formerly, mainly because the depression caused many leases taken during the boom to be thrown on the market.

[36] *Supplements to the Indian Trade Journal*, Dec. 23, 1926, and Dec. 4, 1930.
[37] *Transactions*, Institute of Mining Engineers, XXVIII, p. 537.

Perhaps some of these sub-lessees will weather the period until demand again takes off the output at remunerative rates.

Ownership of collieries in the two principal coal mining provinces in 1911 [38],[39] and in 1921 [40] is shown in the following table:

Province	No.	Number Owned by					
		Government	Companies of which the Directors are			Private persons who are	
			Europeans or Anglo-Indians	*Indians*	*Of both races*	*Europeans or Anglo-Indians*	*Indians*
Bengal							
1911	129	—	53	6	21	7	43
1921	202	—	65	19	18	8	65
Bihar and Orissa							
1911	199	—	80	11	5	6	99
1921	380	11	92	29	20	7	245

Indians are thus taking a more active part in this industry, but they still work the smaller and poorer collieries.

There are two organizations of coal producers, one made up largely of European concerns, called the Indian Mining Association, the other composed largely of Indians, and called the Indian Mining Federation. In 1920, the 134 coal companies belonging to the Association produced two thirds or more of the total output. Not only do the largest producers belong to it but 46 per cent of its members produce 87 per cent of its coal. These concerns were roughly classified in 1924 as follows: [41]

Indian Mining Association Membership

No. of Concerns	Classes by Tons Produced	Combined Production Tons
11 with	under 5,000	11,124
10 with	5,000 to 10,000	77,716
6 with	10,000 to 20,000	89,921
45 with	20,000 to 50,000	1,562,391
62 with	over 50,000	12,445,590
134		14,186,742

[38] *Census of India*, 1911. Tables. V, Part II, p. 350.
[39] *Census of India*, 1911. Tables. V, Part III, p. 230.
[40] *Census of India*, 1921. I, Part II, p. 302.
[41] Some of these concerns, such as the Bengal Coal Company, manage as many as 13 collieries. *Report of the Indian Tariff Board regarding Grant of Protection to the Coal Industry*, 1926. Evidence, p. 134.

The paid-up capital of joint stock companies engaged in coal mining grew from Rs. 67,200,000 ($22,176,000) in 1914 to Rs. 117,746,496 [42] ($42,389,000) in 1925, and the number of companies increased from 153 to 251. A part of this capital growth was due to revaluations, often through re-sales, but no small amount results from the opening of new mines and the mechanical improvement of others. Since the recent depression the number of companies has fallen, by 1931, to 216 and the amount of capital invested has also decreased to Rs. 91,057,387.

There is much complaint about the control of the mines by firms of Calcutta merchants rather than by men primarily associated with and interested in mining. Too often these companies do not appreciate the importance of development and, located as they are at such a distance, it is easy for irregularities to creep into the management. This is probably the most loosely organized business in India. It is well recognized that many positions furnish much larger incomes than those which nominally go with them. The ignorance of the miners, the babel of tongues and the fact that the worker is under a foreman far from the manager; that the manager is far from the superintendent; that he is far from the managing agency, and it, in turn, often far from the shareholders, make effective organization impossible. The bad custom of commission-taking is probably at its worst in coal mining. Firms of managing agents generally do very little towards the success of the operations but their charges, including director's fees, may constitute one-fourth of the total expense of production. The large number of mines owned by private individuals avoid this difficulty but too often run into worse difficulty through inexperience and incapacity.

Management also has been passing over to Indians, beginning with the smaller and less highly mechanized collieries. In 1921, for collieries employing more than 10 persons, there were 364 Indian managers as against 224 European and Anglo-Indian managers, of whom the Anglo-Indians must have been few.[43] Of collieries employing less than 200 hands, 82 per cent had Indian managers; of those not using mechanical power, the figure was 90 per cent. At the large concerns using mechanical power, however, the European managers still predominated. Of the 217 power collieries employing over 200 persons, just under three fourths had European

[42] *Statistical Abstract for British India*, 1926, p. 541.
[43] *Census of India*, 1921. I, pp. 250–1.

or Anglo-Indian managers, and of the 108 of these employing over 400 persons, six sevenths had European and Anglo-Indian managers. Even of the seven collieries without mechanical power and employing over 400 persons each, five had European managers.[44] In Bengal in 1921 there were 74 European and Anglo-Indian managers as against 61 Indian; and in Bihar and Orissa there were 126 European and Anglo-Indian managers as against 247 Indian.[45]

Like the plantation industries, coal mining is conducted on lines analogous to the earlier stages of the factory system. But, though coal mining made greater use of mechanical power and employed more workers on a given area, it has been conducted with fewer of the characteristics of "factory" organization than has tea planting.

Management of labor presented great difficulties to the owners of coal mines, sometimes centering in the employer's inexperience and sometimes in the workers' casual habits and undisciplined nature. Comparatively little progress has apparently been made in this respect since the beginning. Two main systems of working developed early side by side—*ticcadari* and *sircari*—but the more primitive form, *ticcadari,* is the more common today. It is the contract system, and appears in a variety of combinations. Under this system the mine owner usually employs a manager and staff and also the operators of the mine machinery. The Indian or Anglo-Indian *ticcadar* provides all the other hands. In coal mining his essential task is to keep coal cutters and carriers at work in the mine, filling the "tubs" or small cars which are "trammed" to the surface. Commonly he also sees to the removal of the coal from the pit's mouth, to its sorting, stacking, and ultimate loading into the cars or "wagons."

One chief contractor may take the responsibility for the entire working or there may be separate contractors for different tasks, with subcontractors under them, dividing the work above ground, such as sorting, stacking and loading. In each case the contractor is paid so much per ton and he, in turn, provides laborers, generally paid also by the piece, at a slightly lower rate, so that he secures his wages and a slight profit. Within the mine the workers, so far as possible, are on piece wages. This is true of the

[44] *Ibid.,* I, Part II, p. 250.
[45] *Ibid.,* p. 302.

coal cutter—the man who digs the solid coal out with a pick—and his wife or other female helper who puts it into "tubs" or cars. Only the mechanics and persons whose work cannot readily be reduced to repetitive tasks are on time wages.

The *sircari* system is that in which the mine employs and supervises its own labor. But even under this system there is generally a certain amount of the *ticcadari* system, especially in those mines whose equipment is not of the very advanced type. Few mines have all their work done by individuals working directly for the operator.

This type of organization is, moreover, very like that which prevailed in the earlier stages, and in many places remains still, in the mining industries of occidental countries. In England and Scotland not only was the contract system in vogue generally as late as 1800, but something closely akin to serfdom prevailed long after it had passed away in agriculture.[46] As in agriculture, the working force in a mine is so widely scattered and efficiency is so much an individual matter that close supervision is very difficult. Yet mining usually involved such heavy outlay that it could be undertaken successfully only on a large scale, and with central management. With the introduction of central mechanical power, this became all the more true. It early adapted itself, therefore, to a type of organization which included a considerable degree of independence for the worker joined with a loose but somewhat ruthless central control.

With the introduction of more modern machinery, some changes in labor policy are made. In mines where mechanical coal cutters are used, and also in the few cases in which underground loading is done by machinery, the operators are generally on time rates. Indeed, the more highly mechanized the mine becomes, the more does it abandon the contract system for the single central control by the owner or his manager. Machinery advances the factory type of organization.

Labor in the coal mines, as in tea and other industries, has been drawn mainly from the lower ranks of agricultural villagers. More than any other industry, however, coal-mining has relied upon a particular class of workers. The aboriginal tribes, who have been influenced by Hinduism and Mohammedanism without becoming

[46] See Ashton and Sykes, *The Coal Industry of the Eighteenth Century.*

votaries of either faith, have provided the largest single group of miners. In 1921, the *Bauri* and the *Santals*, both very low in the social scale, furnished 45.1 and 52.6 per cent respectively, of the workers in coal mines.[47] The largest specified groups outside these are the leather-working *Chamars* and *Mochis* (who may be grouped together) and the Mohammedans.

The workers are generally agriculturists who go to the mines in the slack seasons. Those who live nearby return home every few days, while those whose homes are at greater distances, return at the principal planting and harvesting seasons about July and November.[48] If crops happen to be good, the workers often desert the mines, but if crops fail through drought or flood, they return in large numbers. As in the tea gardens, coal companies try to settle families on small plots of land, where conditions will be as much like home as possible. In many cases, however, over-crowding makes this difficult, and the workmen are provided with inhospitable box-like shacks from which they flee whenever possible.

Coal-workers' hours are as irregular as their weeks and months. In fact miners come and go about as they like. The government has been attempting to introduce more regularity and has now passed an eight-hour law but it is very hard to enforce. In 1919 the report of a survey of Indian mines stated of the miners that [49]

> They have also no fixed hours of work but enter and leave when they feel inclined. No discipline or control can be exercised at any individual colliery in this respect, as the workers at once leave, and can readily find work in neighboring mines where there are no restrictions on hours.

This system, or rather lack of it, has prevailed from the beginning.

The entire family works in the mines and women and children have always constituted a considerable part of the laboring force, working underground. Some women work independently at pushing cars but most women and children underground carry coal from the places where it is cut to the tracks. A basket which, when loaded, weighs 60 to 80 pounds, is carried on the head, or in case the ceiling is low, awkwardly on one hip. When above ground, women are engaged in sorting, carrying, stacking and loading coal. In 1903 one-fifth of the employees were women, and children under twelve; [50] and it is certain that a large number of the workers not

[47] *Census of India*, 1921. V, Part II.
[48] There is regularly a dip in the coal production curve at these periods.
[49] R. I. Treharne Rees, *Report on the Methods of Coal Mining in India*, p. 5.
[50] *Transactions*, Institute of Mining Engineers, XXVIII, p. 537.

listed as children were girls and boys between twelve and sixteen years. Besides those old enough to be classed as workers, a large number of smaller children have also been in the mines with their parents. In 1927 over 28 per cent of the employees were females. It is not unusual for the *Santal* miner to have two wives, one of whom goes with him into the mine while the other remains at home to care for the children and prepare the meals; but many "monogamous" miners take their entire families with them. The employment of women and children in the mines remains one of the most pitiful features of the new industry in India.

It has long been urged that women and children should be excluded from the mines by legislation. Children under fourteen years have already been excluded and action taken in 1929 prohibits employment of women except in certain specified areas, and looks toward their complete removal from underground working after July 1, 1939. Indeed, there is already a marked shift away from this ugly practice, for among the underground workers, the percentage of women has declined from 23 per cent in 1929 to 18.4 per cent in 1930 and to 16.8 per cent in 1931. In the coal mines in 1931, 16,632 women were so employed. The mine-owners are opposed to this legislation, for they find women workers not only cheaper than men, but also more tractable. Most of the miners also object to being deprived of the earnings of their wives, for only then can they secure enough for their families' needs. Owners claim that the men will not carry coal or do women's work; but some 10,000 men were already carrying coal under ground in 1927, and in some large mines there were more men carriers than women.[51]

Indian coal mining is bound to remain of great importance in the industrial development of the country. Mining conditions are favorable and Indians have made steady advance both as administrators and as workers. The concentration of deposits in the northeast is a handicap but it appears likely that electrical developments in Bombay and along the Indus River will gradually provide power for the West. But the heavy industries have already achieved considerable importance in the northeast and doubtless they, as well as jute and other branches of manufacture, will continue to thrive there. The government's move to keep the process of humanization abreast of the growth and mechanization of industry gives promise of success in coal mining.

[51] *Report of the Chief Inspector of Mines in India*, 1927, p. 6.

CHAPTER XIII

IRON AND STEEL

IRON and steel, the backbone of modern western civilization, were of relatively little importance even in Europe before the Industrial Revolution, and their place in the life of ancient Asia was no larger. In India, steel was used for weapons, for decorative purposes and for tools, and remarkably high-grade articles were produced. The old weapons are second to none and it is said that the famous damascus blades were forged from steel imported from Hyderabad in India.[1] The famous iron column, called the Kutab pillar, at Delhi, weighs over six tons and carries an epitaph composed about 415 A.D.[2] No one yet understands how so large a forging could have been produced at that time. Remains of old smelting furnaces found throughout India are essentially like those in Europe prior to modern times.[3] Compared with a modern country, India had very little iron, but it was produced in widely scattered communities.

The *Agarias*, or iron smelting caste, were widely dispersed and the name *lohara* is applied to a great many districts producing iron ore. A sprinkling of the primitive iron smelters, with their crude little temporary furnaces for the production of small batches of impure metal, remains today. Almost within the glare from the furnaces of Jamshedpur, where one of the greatest and most modern steel plants of the world now operates, some of these old smelters are still making their slight contributions to furnish the sinews of war and peace. But the introduction of cheaply made European iron has taken away nearly all their trade and most *Agarias* have turned to unskilled labor.

A century and a quarter ago, Dr. Francis Buchanan found many of these smelters. The furnaces varied in different districts but

[1] Watt, *Commercial Products of India* (quoting Syed Ali Belgrami), p. 692.
[2] J. Coggin Brown, *India's Mineral Wealth*, p. 56.
[3] W. T. Blanford, *Journal of the Society of Arts*, XXI, p. 392.

were always small and relatively ineffective. Sometimes they were merely a hole dug in the ground but usually there was a crude furnace, built of clay, two or three feet high and containing a cavity which varied in width from about one foot at the bottom to two or three inches at the top. Two smeltings could be accomplished in a day. Various types of crude bellows were used of which Buchanan describes two.[4] In one, a large piece of leather was fastened securely over the top of a wooden tub having an opening in the bottom through which a hollow bamboo led to the bottom of the furnace. When drawn up by the spring of a bamboo pole, the leather formed a semi-circular dome. A hole in the leather admitted air. A workman placed his bare heel over the hole, thus making a cap to the "valve," and threw his weight on that foot, forcing the leather far down into the tub and expelling the air to the furnace. Two of these tubs were placed side by side and the man thrust his weight first on one, then on the other. When an extra strong blast was desired another man stood behind him, to double the weight on each bellows. Another type of bellows, which is still widely used by primitive smelters and blacksmiths, consists of hollow goat or buffalo skins which have been removed without cutting lengthwise. These are fitted with tubes leading to the furnace and provided with openings to introduce the air which is similarly forced out by the weight or muscular strength of workmen.

Sometimes ore was procured in the form of iron sand from the beds of streams but generally it was dug from shallow pits. Since iron-bearing strata were widely scattered and transported only on the backs of donkeys or of buffaloes, smelting was limited to regions in which there was timber for charcoal production. The smelters, the lowest of the castes, lived in the rude huts, and frequently moved about in search of better ore or timber. They were notorious drunkards, and their standards of living were very low.

Generally the iron from the furnace was very impure and required further forging before it could be made into tools and implements but when finished it was often of very high quality. Forging was carried on in the same neighborhood either as a part of the same establishment or independently. In the background

[4] Francis Buchanan, M.D. *A Journey from Madras through the Countries of Mysore, Canara, and Malabar*, p. 171. Also Plate VIII in front of same volume. See also another account by the same observer in Montgomery Martin, *Eastern India*, II, p. 262.

were merchants who made advances and received the product for marketing.

An account of the number employed and of the distribution of the product at one of these primitive smelters is given by Francis Buchanan as follows: [5]

At each set of works twenty men are employed. In the smelting-house there are,

1 man to put in the ore and charcoal, and to take out the iron.
3 men to blow the bellows.
6 men to supply the charcoal.
1 man to supply the ore. In a forge that is about two miles from the mine, he must keep 5 asses.

In the forging house there are,

1 blacksmith to manage the fire and furnace.
2 bellows-men.
3 hammer-men.
3 charcoal-men. . . .

The ore is smelted twice a day. . . . The two blocks of iron from the smelting-furnace are heated, and then cut into five wedges, each about three *Seers;* [6] and twenty-five, each about two *Seers*. . . ."

The manner of division is as follows: the master gets the produce of one day's labour, and the workmen get that of three, and divide each day's work thus:

	Large Pieces
To the man who furnishes ore—for himself and cattle	2
To each of the bellows-men at the smelting-furnace 1 large piece	3
Large pieces	5

	Small Pieces
To the head-man at the smelting furnace	3
To each of the 9 charcoal makers 1 small piece	9
To the blacksmith	5
To each of the bellows-men at the forge 1 piece	2
To each of the hammer-men 2 pieces	6
Small pieces	25

The labourers do no other work; and, when the master can make the necessary advances, are employed the whole year. Allowing that they smelt in all 320 days in the year, the lower workmen, at a medium price

[5] *Ibid.*, II, pp. 35–8.
[6] One seer equals about two pounds.

of 4 pieces of iron for the *Fanam*,[7] make only 5 *Fanams* a month, out of which they must pay ground-rent for their huts. This is low wages. The blacksmith has high wages; but he must find the hammers, anvils, forceps, &c.

The annual expenses of the master are:

	Fanams
To the renter of mines and woods	130
To ground-rent for the forge	50
For bellows	180
For an annual sacrifice to *Gudada Umma*, the mother of the hill	10
For two sacrifices to *Hombalu Dévâru*, the god of furnaces	30
To a feast given by the labourers at *Gauri*, in honour of the anvil, 150 coco-nuts, and one Rupee's worth of legumes	20
A new cloth to the blacksmith at *Sivarâtri*	10
Fanams	430

. . . by way of a retainer, the master must advance from 50 to 70 *Fanams* to each man, say in all 1200 *Fanams*, and must make them occasional advances of 20 or 30 *Fanams*, to enable them to subsist till they can sell their iron. They are by this means bound to his service; and, without repaying the advances, which very few of them are ever able to do, they can follow no other employment. If he cannot employ them, they may for a subsistence work with the farmers. He is obliged to build their huts, which is done in the intervals of other labour. It is probable, in fact, that all the advances are made by the merchant, in which case his profit is sufficient.[8]

These twenty men with their daily output of six pounds of iron each could not withstand the competition of European power-smelted products introduced by the railways. At one of the modern iron works, 1800 hands produce 700 tons of pig iron daily: that is, they produce, instead of six pounds, 777 pounds each. Yet decades ago and as late as 1891 there were 110,000 persons working as, or supported by, "blacksmiths and dealers in iron" in Chutia Nagpur alone. The census states that: [9]

[7] One fanam equalled about 15¢ U.S. money.

[8] In this case the assumption of the classical economists that the capitalist advances a bare subsistence to workers was almost literally fulfilled; and it throws an interesting light upon the relativity of economic doctrines to the conditions of the place and time in which they are formulated.

[9] *Census of India*, 1891, III, p. 290.

The number of blacksmiths in Chutia Nagpur is explained by the fact that their occupation is regarded as a respectable one by the aboriginal tribes. The production and preparation of iron is of old date in their hills, and, though now less extensive than before the introduction of European manufacture, the hereditary smith-class is a comparatively large one.

The nearest economic "kin" to these people now to be seen in India are the tribes of wandering gypsy blacksmiths who, generally from blast furnace iron or steel, produce a variety of agricultural and other tools and implements which they sell as they go. Even they are meeting with deadly competition from the plants using modern machinery and organization.

Apparently the Europeans in India paid little or no attention to iron production until the nineteenth century, that is, until the demands of the "age of steel" were beginning to outrun the supplies in Europe. In 1777 Messrs. Farquhar and Motte sought permission "to bore cannon and to cast shot and shell in the district of Jherria," [10] stating that the neighborhood lay "contiguous to the coal mine of Messrs. Sumner and Heatly," already mentioned in the chapter on coal. This enterprise left very little mark, having operated only two years.[11] Nothing more was done until an increased demand for steel grew out of the Napoleonic wars. In 1808 the East India Company had a Mr. Duncan investigate the iron resources of Madras; and under their protection he established a small factory which apparently came to naught.[12]

In 1825 the government of Madras requested that the Company grant to Mr. Josiah Marshall Heath, a former Civil officer, the exclusive right to smelt iron and produce steel in the Company's domains during the continuance of its charter. Mr. Heath has been spoken of in complimentary terms by those who knew him and undoubtedly was a man of great perseverance. It was found that remarkably rich ore capable of producing a high grade iron existed in "inexhaustible supply . . . on the surface, near a navigable river, not far from the coast; and great abundance of fuel" (charcoal) could be "procured in the immediate neighborhood." [13] In order to provide him with funds, the government of Madras (Fort

[10] *Bengal District Gazetteer,* XXIII (Burdwan), p. 128.
[11] Ranade, *Essays on Indian Economics,* p. 161.
[12] *Parl. Papers,* 1831, Affairs of the East India Company, V, p. 129.
[13] Letter from the Court of Directors to the Government of Fort St. George, Feb. 11, 1835. *Parl. Papers,* 1852–3, LXXVII, paper 634, p. 24.

St. George) "granted to Mr. Heath the contract for procuring the Company's investment of cotton for three years, hoping that the profits of the contract would provide funds required to prosecute his manufacture of iron. But the cotton was rejected, the speculation failed, and the contract discontinued, leaving Mr. Heath indebted to the government to the sum of 135,000 rupees." [14] However, the officials were evidently anxious to see him through and advanced successive large loans on favorable terms until in 1835 his debt was Rs. 571,000. Work was ultimately undertaken at five different points extending from Porto Novo, a small seaport south of Madras, to Beypoor on the Malabar coast. Great hopes were entertained regarding the prospects at Salem but considerable quantities were produced only at Beypoor and Porto Novo. By 1849 the debt, which drew interest at four per cent per annum, had risen to Rs. 822,240,[15] and no appreciable quantity of iron had been produced. In 1853 a new company, called the East India Iron Co., was formed to take over the properties. In 1855, it manufactured 2150 tons of pig iron and lost £392.[16] The business languished, ruining several people financially, until the nearly worthless holdings were finally taken over by the Government in 1874.[17]

On different occasions during the first two or three decades of this project, inspections were made by supposedly competent persons and the reports were always favorable. Samples of iron were sent to England where they tested better than imports from Sweden and it seemed that iron could be produced and shipped to England at a price considerably lower than that then ruling. A later investigation stated that the failure was due to inexperience, defective machinery [18] and lack of capital. All three factors were important but the chief factor was the revolution in iron and steel production which came in Europe and America as the Industrial Revolution progressed. The calculations of the second quarter of the century, upon which Mr. Heath's project was founded, were rendered use-

[14] *Ibid.*, p. 23. Messrs. Alexander & Co. of Calcutta, who a little earlier had guaranteed Mr. Jones' coal mining loan to the government, were also Mr. Heath's guarantors in the cotton contract. They later settled this account which, with accumulated interest, amounted to Rs. 250,000 for Rs. 100,000 cash.

[15] Letter from the Accountant General, *ibid.*, p. 465.

[16] *The Englishman* (Calcutta), May 3, 1856.

[17] Watt, *Commercial Products of India*, p. 690.

[18] One defect in machinery was the manufacture in England of a "gin" to be drawn by bullocks. Having been calculated according to English standards, it was too heavy for Indian cattle.

less by the improvements in the smelting of iron by coal and in the production of steel by the Bessemer process. Long before the Company was finally wound up, it should have been clear that an Indian iron industry could succeed only by means of thoroughly modern methods and in regions in which coal and iron were in proximity. Yet as late as 1896 Madras hope still flickered; although the Secretary of State for India then secured an expert opinion that iron production probably would not be successful, the Madras Board of Revenue refused to be convinced. But no more State money was expended on the project.[19]

In 1837 the government ordered an investigation of the iron ores in the Kumaon district of the United Provinces. Furnaces were erected in 1857 by both government and private parties, the two most important being European firms. These efforts failed,[20] chiefly for lack of fuel. Failure was here evident as early as 1862 but a further attempt was made by the government in 1877, which met the same fate.[21] In 1839 Messrs. Jessop and Co., the oldest engineering firm now operating in India, began an experimental iron works, near Barakar[22] on the Raniganj coal fields, which soon closed. In 1855, another of the Calcutta agency houses, Messrs. Mackay and Co., started the Bhirbhum Iron Works at Mohammed-bazar just northeast of the Raniganj coal field. About 1858 this concern produced two tons of excellent pig iron per day but on account of lack of charcoal it was closed in 1860.[23] In 1875 Messrs. Burn and Company, another Calcutta agency house, undertook to operate the same works but soon gave it up. All these concerns were dependent upon charcoal for fuel.

In still another part of the country, this time on the Nerbudda River, about two hundred miles above its mouth on the Gulf of Cambay, the government carried out experiments and erected works. "Ore and limestone abounded in the neighborhood and a large forest, extending for many miles, furnished a sufficient supply of charcoal. Above all, a competent manager was in charge."[24] But in 1864 Captain Keatinge, the official responsible for the

[19] Watt, *Commercial Products of India*, p. 689.

[20] W. T. Blanford, *Journal of the Society of Arts*, XXI, p. 393. Also Ranade, *Essays in Indian Economics*, p. 166.

[21] Fox, in Annexure I, *Report of the Indian Tariff Board regarding the Grant of Protection to the Steel Industry*, 1924, p. 92.

[22] Fox, *Transactions of the Mining and Geological Institute of India*, XIX, p. 4.

[23] Blanford, *op. cit.*; also Ranade, *op. cit.*, p. 162.

[24] *Ibid.*

project, was transferred and "the government, in a fit of economy after spending 7½ lakhs (equal at that time to $375,000) dismissed Mr. Mitander and closed the works." [25] After an unsuccessful attempt to sell the plant, it, together with the territory on which it stood, was turned over to the Maharajah of Indore. Thus ended a long series of attempts, by the government and by European firms, to introduce blast-furnace smelting of iron with charcoal as fuel.

In 1875 two separate attempts were made to smelt iron by means of coal instead of charcoal. The government delegated a Mr. Nees to experiment with the coal and ores of the Chanda district in the Central Provinces.[26] The ore was pronounced of excellent quality but the high percentage of ash in the coal proved a great obstacle. In the same year the Bengal Iron Company started operations near Asansol, on the Raniganj coal field. Neither its ore nor its coal were of high quality and its original capital of only Rs. 1,000,000 proved insufficient. Failing to secure government backing, it closed after four years. The total output of the plant was only twenty tons per day, much too small for profitable iron smelting at that period. The government acquired this plant in 1881 and worked it for eight years. A Mr. von Schwartz was put in charge and some 30,000 tons of pig iron were reported as the production for the five years, 1884–9.[27] There were two blast furnaces and a foundry for producing pipes, ornamental work and some other simpler products. The plant was then sold out to a new Bengal Iron and Steel Co., Ltd., for which Martin and Co., another Calcutta house, became managing agents in 1894 and remain in control to the present time. The government came to the aid of the Company with an order for 10,000 tons of pig iron or castings per year for ten years at five per cent less than the price of the same goods if imported. The works were gradually enlarged and improved and in 1903 steel producing equipment was installed, with a government subsidy of Rs. 22,500 ($7,500) per

[25] *Ibid.*

[26] Mr. J. N. Tata, who died before his plans were realized but who did more than any other person to establish the iron and steel industry in India, proposed to undertake iron smelting here about 1885 but was refused. Lovat Fraser, *Iron and Steel in India*, p. 12.

[27] Ranade, *Essays*, p. 164. Mr. von Schwartz wrote a report on the possibilities of iron and steel manufacture in the Central Provinces, which had much to do in turning Mr. J. N. Tata's attention to the industry. See Fraser, *Iron and Steel in India*, pp. 11–12.

year; but steel-making was unprofitable and the Company lost Rs. 550,000 (about $183,333) in six months. The steel-making department was closed down and its plant, which cost Rs. 1,750,000 ($583,000), was practically a dead loss. In 1910 the Company began drawing ore from a much better field in Singbhum and results improved. It now produces successfully pig iron, iron pipes, railway and other castings. During the World War, the usual large profits were made and at its close this concern passed through a period of financial manipulation, then was reorganized in 1919 under the name of the Bengal Iron Company. At this time a new concern, the Indian Iron and Steel Company, was launched, provided with the most up-to-date American equipment and apparently able to sweep its competitors off the map. The old company, however, secured a majority of the shares of the new rival and is now understood to be making most of its profits from that investment.

The materials for developing an iron and steel industry in India are for present needs adequate but not abundant. The large supplies of fairly good coal and of exceptionally high-grade iron ore, are, for the most part, located near together. Fluxes are less plentiful and less well located but probably the industry will not suffer from lack of them.

The iron ores are not so plentiful as those of several of the western countries but they are remarkably rich and are sufficient to support a great industry for a long time. Mr. H. C. Jones of the Geological Survey of India estimates that there are in the so-called "iron belt" of Orissa, 2,832,000,000 tons of ores containing not less than sixty per cent of iron. "Both in quality and quantity these hematite ores are thought to exceed any other ores of the same kind, including the great American occurrence of Minnesota, Wisconsin and Michigan." [28] Some would place this figure still higher. An American mining engineer, who has been closely associated with the Indian iron and steel industry for a quarter of a century, says that in the quadrangle of which Calcutta is the northeast corner and lying 400 miles west and 200 miles south from that city, there are 20,000 million tons of high grade ore at an average distance of 125

[28] *Report of the Indian Tariff Board regarding the Grant of Protection to the Steel Industry*, 1924, p. 91.

miles from the Bengal coal fields.[29] Another superintendent of the Geological Survey says that[30] "the ore usually occurs at or near the tops of hills and the most important hill-range has a length of about 30 miles. It rises 1,500 feet above the plains, and iron-ore averaging over 60 per cent of iron occurs for practically the whole length." This field is considered sufficient to support an iron industry equal to that of Great Britain or one-fifth that of the United States for 300 years.[31]

Besides the fact that these ores are practically as rich in iron as nature allows, sometimes rising to over seventy per cent, they contain remarkably small quantities of those materials which hinder steel manufacture. Sulphur content is often only a trace and is never over 0.6 per cent while the phosphorus averages 0.08 per cent.

Mining conditions are very favorable since the material can be taken directly from the surface. The location on high hills obviates pumping and gravity carries the ore down to the plain. The government has constructed a railway to this field, especially built to furnish ores for the Tata Iron and Steel Company, which is between forty and eighty miles from the mines now being worked. As already noted, iron ore is widely scattered over the country but only these richer fields are now occupying attention. At some future period it may be necessary to use the poorer ores.

The supplies of coal are neither so plentiful nor of such high quality as those of iron ore. Such estimates as are available place India's total coal resources at 54,000,000,000 tons, of which perhaps five per cent is coking coal.[32] About one tenth of this coking coal lies in Assam, but the balance is within an average of from 120 to 130 miles from the chief iron deposits. There are differences of opinion among the experts but apparently "the quantity of suitable fuel for an extensive iron and steel industry is limited."[33] The quantity of coal for this purpose depends also upon the amounts taken for other purposes and the extent to which hydro-electricity may be produced.

The quality of coal, as we have already seen in the chapter on that subject, leaves much to be desired. One blast furnace foreman

[29] *Ibid.* Mr. C. P. Perin, quoted by Dr. C. S. Fox, Officiating Superintendent of the Geological Survey of India.

[30] J. Coggin Brown, *India's Mineral Wealth*, 1923, p. 58.

[31] Dr. C. S. Fox, *Transactions of the Mining and Geological Institute of India*, XIX, p. 29.

[32] Dr. C. S. Fox, of the Geological Survey of India, in *Report of Indian Tariff Board regarding the Grant of Protection to the Steel Industry*, 1924, p. 96.

[33] *Ibid.*, p. 97.

spoke of the iron ore as "the best in the world" and of the coal as "the poorest in the world." This goes too far, but there are wide differences in the qualities of the two groups of materials. The coal contains a disproportionally large amount of ash and also of phosphorus. The exceptionally high percentage of iron in the ore largely offsets the high ash content but the phosphorus makes necessary the use of the more expensive duplex process of conversion.[34] The Assam fields are not yet used, but the large quantities of sulphur which they contain detract from their value as a possible source of coal for steel manufacture.

Transport costs are relatively low. The Tata Iron and Steel Company, the largest concern in the field and the only one producing steel and steel products, hauls its ore 40 miles and its dolomite (for flux) and its coal 100 miles. Other concerns can readily secure equally favorable arrangements.

On the basis of these conditions, Mr. Perin says[35] that within a measurably short time India ought to be able to supply her own needs for iron and steel and "to export pig-iron to almost any market in the world"; that "pig-iron can be produced at figures which defy competition" and "India offers exceptional opportunities for the courageous manufacturer of iron and steel."

The early attempts at the manufacturing of charcoal iron in India were made with the hope of exporting it to Europe; but with the development of railways, the extension of various public works and the growth of factories, India herself became a great importer of iron and steel and her manufacturers have therefore aimed not at export but at capturing a part of the home market from the importers. In 1906–7 the Bengal Iron Company produced a paltry 40,000 tons of pig-iron,[36] while India imported $25,000,000 worth of metal manufactures, nearly all from the United Kingdom.

Finally, Mr. J. N. Tata, a Parsee of Bombay, who had already made a fortune in cotton spinning and manufacturing, became interested in developing the iron resources of his country. Mr. Tata spent several years after 1877 in the management of his Empress Mills at Nagpur, and in 1882 read a report written by von Schwartz,

[34] After the carbon and silica are removed in the Bessemer converters, the steel must be treated in the tilting open hearth furnace for removal of the phosphorus which has been taken up from the coal.

[35] *The American Iron and Steel Yearbook*, 1925, pp. 301–5.

[36] J. G. Cummings, in *Review of the Industrial Position and Prospects in Bengal in 1908*, p. 23.

superintendent of the Bengal (or Barakur) Iron Works, upon the prospects of iron manufacture in the Central Provinces. The government then owned the Warora Coal Mine to which it had built a railway and which it operated on its own account until 1906. Besides a large quantity of coal there was "a hill nearly two and a half miles long by half a mile broad" which seemed to be solid ore yielding about 70 per cent iron.[37] Experiments with iron smelting made by the government in 1875 were not successful because of the poor quality of the coal. It was non-coking and gave a very high percentage of ash. Mr. Tata was not quite convinced, however, and after some inquiries proposed to the officials of the Central Provinces that he should take over their coal mine and manufacture iron on a large scale. His offer was rejected, partly because he insisted upon controlling the short railway leading to the property.

About twenty years later a favorable change in the official attitude occurred. When Lord Curzon became Viceroy, he had the rules relating to prospecting and mining liberalized, and George Hamilton, then Secretary of State for India, encouraged Mr. Tata to proceed. With this backing he started on a long period of exploration and experiment, in the course of which he opened up the great "iron belt" already mentioned; and though he died before completing his work, his sons and successors have established in the jungle about 150 miles west of Calcutta one of the largest and best equipped iron and steel plants in the world.

The capital for this concern was raised entirely in India—mainly in Bombay, Mr. Tata's home city. The original plant was rather unwisely purchased and operated, for the machinery for different processes was bought in various countries, such as the United States, England, Germany and Belgium.

The first iron was smelted at the end of 1911 and steel production began a little later. The government gave a standing order for 20,000 tons of steel rails at a price equal to that for which similar rails could be imported. The new plant was, therefore, well initiated and ready for full-time operations when the World War, with its great demand for steel, began. During the War period the plant, with its total output commandeered for government orders, worked at the highest pitch. New equipment was rushed in from America and the capacity was greatly increased. With the

[37] Blanford, *Journal of the Society of Arts*, XXI (1873), p. 392.

end of the War an extension plan was carried out, and the better part of a much larger plant, this time strictly American throughout and incorporating all the great advances made in twenty years, has been set up. The original capacity was 160,000 tons of pig iron and 100,000 tons of steel per annum but the present plant allows for about five times this output. Something like $70,000,000 had been invested by 1925.[38] Unfortunately some of these extensions were made when prices were very high and therefore, since the company was somewhat over-capitalized, the period of depression found it unable to pay dividends. With a creditable War record it was in good favor with the government (perhaps it had been promised a friendly interest) and, supported by the protectionist and nationalist spirit which had been current in India for some years, it made a successful bid for government protection to steel manufacture. In 1924, after inquiry by the Tariff Board, assistance by both protective duty and bounty was secured.[39] For steel rails, a bounty decreasing in three years from Rs. 32 to Rs. 20, plus an import duty of Rs. 40 per ton, was granted. Various other articles were given similar protection, sometimes by specific duties, but where *ad valorem,* at rates ranging from 15 to 25 per cent. By 1931 most iron and steel products, including pig-iron, which in 1924 had been considered able to compete, were protected to the extent of from 15⅝ to 21¼ per cent *ad valorem,* plus an addition for non-British goods of from about six to about sixteen dollars per ton.

Since the World War, the Indian Iron and Steel Company, already referred to, has erected a splendid plant for pig-iron, and put its products on the market. Though as yet producing only pig-iron, it is, like the new Tata concern, constructed after the most up-to-date American plan, and has everything in labor-saving devices. Its output is 650 tons of pig-iron per day. As already remarked, this plant is now controlled by the Bengal Iron Company and these two concerns, together with the Tata and a small new plant in Mysore state, which produces about 20,000 tons of pig-iron per year by means of charcoal, are the only modern iron producers in India. Together they turn out something over one million tons of pig-iron and the Tata concern converts about half of this into 500,000 tons of steel per annum.

[38] Perin, *American Iron and Steel Yearbook,* 1925. On 31st March 1926, the gross block capital was Rs. 207,501,464 = approximately $74,700,527.

[39] Act XIV of 1924.

The principal control of all these concerns is in Indian hands. Control of the largest company, the Tata, has always been strictly Indian. The agents and perhaps the chief owners have been Parsees, but Jews, Hindus and Mohammedans have been and are on the board of directors. While plant managers and leading assistants have been Europeans and Americans, no Europeans or Americans have ever been on the controlling board. In the beginning, American engineers and contractors had general oversight. The staff of experts brought out to superintend and help operate the first works came from several different countries and this caused some difficulty. The manager has always been an American, and several Americans have been on the staff, especially in charge of the blast furnaces. Germans were in charge of steel making until well into the World War and Englishmen operated the rolling mills. There were also Austrians, Swiss, and Chinese, famed in India for carpentering skill.[40] While policy seems to favor the continuation of American management, there is a tendency to employ Scotsmen and Englishmen in the lower directing staff. An American manager is more inclined to insist upon efficiency and mass production methods and to urge the Indian to realize them. On the other hand, because of less opportunity at home and because they are still under their own flag in India, well-trained Englishmen and Scotsmen are more inclined than Americans to go to India and are better satisfied to remain, once they have arrived. Also they take up more readily with the traditional attitude toward Indian workmen which, while less effective, is far easier on their own nerves and lasting qualities.

The dependence of all the three large concerns upon imported managers and technicians is the weakest point in this industry. The cost of travelling expenses out and back for the men and their families, with a month or more of time spent in each journey, involves heavy expenditures. Also living in India is fairly expensive because provision must be made for certain aids in the way of schools and amusements to counteract the feeling of exile; and a net salary considerably in advance of what would be received at home must be offered in order to induce men to make the trip at all.

Not only is the outlay high for management but also the imported personnel as a group is less effective than at home. The climate is a trial, and they are working under conditions which are new,

[40] Harris, *Life of J. N. Tata*, p. 216.

which they seldom understand and by which they are often depressed rather than inspired. To most of them the typical Indian worker appears a lazy, inefficient, ignorant weakling. There are so many interracial and international complications that the machinery of control often becomes very loose. To make matters worse, the imported industrialist is in a particularly strategic position over against his employers. Like the indentured Indian laborers on the tea gardens, he has been given a large sum for travelling expenses and cannot be dismissed with impunity. Some of the foreign technicians take advantage of this situation and give less loyal service than they would at home. Ordinary labor is so cheap per man in India that total charges for labor are somewhat less than in America; but the outlay for management and technical knowledge and skill are fully twice as large.

While great progress has been made by Indians in the mastery of the technical processes of the iron and steel industry the foreigner is still absolutely essential, especially for direction and for many technical tasks. So far as physical work is concerned, the Indian has become competent to take over practically all the jobs. Although only a few are now capable of making delicate technical decisions, a large number, especially Parsees and Sikhs, are rapidly acquiring both the technique and the ability to direct. This industry affords additional inducement for young men to undertake technical study, and the largest company has set up a technical institute near its own works where very good training is given to selected candidates in close connection with the actual work of iron and steel manufacture. A number of young men are also studying along these lines in foreign countries. Managerial ability is harder to acquire but native talent is developing. Stimulated by the requirements suggested by the Fiscal Commission for a concern which is to be endorsed for bounties,[41] "Indianization" is going on apace. The Tariff Board reported in 1926: [42]

In regard to the superior staff, the Tata Iron and Steel Company has consistently followed a policy of replacing Europeans and Americans by qualified Indians. The progress made in the last three years is shown by a comparison of the numbers of covenanted employees (*i.e.*, Europeans and Americans) employed at various periods during the last four years.

[41] *Report of The Indian Fiscal Commission*, 1922, p. 160.
[42] *Report of the Indian Tariff Board regarding the Continuance of Protection to the Steel Industry*, 1927, I, 76.

The total number in September, 1924, when the covenanted staff was at its maximum, was 229 which by June, 1926, had fallen to 161, a reduction of approximately 30 per cent. Technical knowledge of a kind special to iron and steel works is required in the producing departments, namely, the coke ovens, blast furnaces, steel making departments and rolling mills. For several years now no covenanted employees have been employed at the coke ovens. At the blast furnaces, open hearth department and old rolling mills which are the older portions of the plant, the number has fallen from 64 in 1923–24 to 47 in 1925–26. The new parts of the plant, namely, the duplex plant and the new mills (excluding the sheet mills), have hardly been in operation long enough for any substantial reduction in covenanted labour to be effected; the number employed in 1924–25—the first year of full working—was 49, and in 1925–26 was 47. There has thus been a reduction of 17 in the covenanted staff in the older portions of the plant and of 2 in the newer portions. Of the 19 places which thus became vacant, 15 were filled by Indians and 4 were net reductions. In the sheet mills, where special difficulties have been experienced, 66 Europeans were employed when the work first started towards the end of 1924. By June 1926 this number had been decreased to 22, most of the posts having been taken over by Indians. It will appear, therefore, that, although since 1923–24 the output of finished steel has more than doubled, India is rapidly becoming less dependent on imported labour in the manufacture of steel.

Between 1924 and 1930 the total number of foreigners employed declined from 229 to 128.[43] A great drawback is the lack of aggressive ambition in the Indian laborer. The steel industry is more successful in building up ambition than most industries have been. It is a "man's job" and in it the servile attitude survives with difficulty. Steel workers are tending to become a permanent force of a more rugged type. Between them and the younger and less virile groups in the old hand trades and in the jute and cotton mills, there is a wide difference. A larger proportion of the workers have come from the artisan class [44] who are physically stronger and more accustomed to rough, dirty work. Some were doubtless iron smelters and blacksmiths under the old methods; but even that work called for less hardihood and endurance than does a modern steel mill. The food and dress, as well as the physique of the Indian villager, are inadequate for a steel mill where heavy lifting and rapid movement are often necessary. The heavy exercise has compelled him to eat larger quantities of more nourishing food, such

[43] Royal Commission on Labour in India, 1931, *Evidence*, IV, Pt. 2, p. 476.
[44] See Broughton, *Labour in Indian Industries*, p. 87.

as goat's meat and milk, which builds up the kind of physical efficiency required. He has also had to learn to protect himself from the red-hot coke and iron. Workers about an old-fashioned hand-smelter, though generally almost naked, were accustomed to sparks, but the pouring of molten iron by the tens of tons, the receiving and handling of rapidly moving red-hot wires, rods and bars were different. Walking on and handling rails and girders demands certain additions to the worker's wardrobe—shoes for his feet, covering for his legs and gloves for his hands. Willingness to move with the speed which modern machinery necessitates is slower of development, so for some tasks four Indians to one American are required, and on the average the ratios are nearly 3 to 1.

The iron and steel industry employs few women and children except in the open-pit mining of ore where nearly one-third of the hands are women. But even this is a small number, only about 2,700 in all. At one large mill women are used only for certain maintenance work, such as carrying dirt. In another large plant women were working temporarily in the handling of coke. In general, only full-grown men are employed, and the most modern labor-saving machinery is being brought more and more into play. A somewhat strange relic of the old days remains at the ore mines in the loading of iron ore from baskets on women's heads rather than by steam shovel. "It is a matter of economy," says the American manager. Rice to feed the women costs less than coal to feed the steam shovel.

India is becoming a very considerable market for numerous steel products, some of which, such as hardware, machinery and railway equipment, call for an effective engineering industry; but some lines, such as steel rails, construction materials and sheets, galvanized or otherwise, constitute a regular part of the steel industry itself. Railway mileage is already up to 42,000 and the roads are steadily increasing their demand for rails, iron "sleepers," [45] bridges, cars of all sorts and locomotives. Galvanized sheets are much in demand for roofing, being especially suited to the needs of a country visited by such terrific heat and such floods of rain. In 1925–6 just under Rs. 100,000,000 worth of these sheets were imported. The Tata Company has built a large plant for their manufacture and is already producing nearly all the rails used in the country.

[45] Iron sleepers are used because white ants soon consume wooden ones.

These large plants draw their iron ore from the new rich reserves and their coal from the Jharia field, and true to original calculations, the costs are very moderate. In the beginning it was estimated that the iron ore for a ton of pig iron could be mined and placed in the plant for 75 cents as against $8 then at Pittsburg.[46] In 1927 this had risen to $1.50 per ton while coal cost had risen to $2.70 per ton. One and seven-eighths tons of coal produces one ton of pig iron but from three to four tons are required to produce a ton of finished steel. In 1926, iron was produced at a cost of some Rs. 25 (about $9) per ton.[47] Mr. Perin's statement that "pig iron can be produced at figures which defy competition" seems justified.

Steel is not so readily produced and seemed to require protection. The Indian iron and steel masters have been able to capture the major part of the small home market for pig iron and some cast-iron products, but have made a great and lasting impression only in pig iron and steel rails. While pig iron and coarse castings, such as sewer and water piping, are produced cheaply, steel manufacture is still far more expensive than elsewhere. As the Tariff Board and the government have taken the ground that the prospects for the future are bright, this seems a promising case for protection to a young industry. But whether cheap materials and labor can overcome lack of skill is not yet demonstrated. The figures furnished by the Tata Company for recent years show a very marked reduction in manufacturing costs, owing partly to better equipment and partly to greater efficiency in the work. Manufacturing expenses were reduced in earlier years and the improvement lasted into the latter part of the War, as may be seen by the first three columns of the following table.[48] However, the rise of prices and wages carried all these items up again as shown by the last two columns of the table.

WORKS COST PER TON OF STEEL PRODUCTS

DEPARTMENT	1912–13		1913–14		1916–17		1921–22		1922–23	
	Rs.	As.	Rs.	As.	Rs.	As.	Rs.	As.	Rs.	As.
Open Hearth Ingots . .	69	10.82	54	9.59	41	2.12	68	13.12	72	8.00
Blooming Mill	87	4.78	68	3.62	49	15.21	83	10.72	89	1.76
28" Mill	147	2.08	94	1.89	75	2.76	116	0.00	125	1.12
Bar Mills	150	9.17	118	14.69	81	15.85	135	8.00	138	8.48

[46] Frazer, *Iron and Steel in India*, p. 66. Quoting Mr. Kennedy of Pittsburgh in 1911.

[47] *Indian Tariff Board's Report on Protection to the Steel Industry*, 1927, I, 10.

[48] *Statements and Notes received by the Tariff Board from the Tata Iron and Steel Co.* (Government Press, Calcutta, 1923), p. 42.

Only with the installation of the new plant and the increase in output were costs again reduced.[49]

COSTS OF PRODUCTION OF VARIOUS STEEL PRODUCTS

	1923–24 Rs. per ton	1924–25 Rs. per ton	1925–26 Rs. per ton	AUGUST 1926 Rs. per ton
Pig iron	36.28	32.73	28.48	25.21
Steel ingots	71.02	65.1	57.29	51.27
Rail and structural mills	120.93	111.44	101.53	85.1
Bar mills	132.55	131.32	111.14	105.9
Plates	142.1	145.8	124.3	103.3

Yet in spite of this marked improvement, the hopes of the Tariff Board for lowered costs of production were not realized and in 1930 and 1931 further favors were requested and received at its hands. This appears, however, to have been due to the fall in demand. The Board's calculations were on the basis of a steady annual demand from Indian railways of 195,000 tons; the actual orders fell in 1930–1 to less than half that amount, and because of this reduced operation the entire business was rendered unprofitable. The government agreed to an increase of Rs. 20 per ton for rails [50] and to small increases in tariff rates on several steel railway materials.[51] Only in the production of black and galvanized sheets did the actual costs of 1929–30 fall to or below the Tariff Board's estimate for average costs 1927–34.[52] A part of this failure was ascribed to labor troubles which resulted in an increase of some Rs. 4 per ton of steel. Although the number of employees was reduced by 13 per cent in four years total wages increased 11 per cent.[53]

Despite the increased Indian protection of pig iron and steel rails, the market is still largely supplied by imports. The importation of "rails, chairs and fishplates" was in 1926 only six per cent of that for 1913.[54] A small quantity of pig iron still comes in for special uses and also because it can be carried as ballast. At the same time a large amount of pig iron from the Indian plants is exported. But the combined figures for imports of most of the items constituted

[49] *Indian Tariff Board's Statutory Enquiry, Steel Industry*, 1926, I (pub. 1927), 10.
[50] *Report of the Indian Tariff Board on Steel Rails*, 1931.
[51] *Report of the Indian Tariff Board regarding Certain Railway Materials made of Steel*, 1930.
[52] *Report of the Indian Tariff Board on Additional Protection for Galvanized Sheets*, 1930, p. 14.
[53] *Ibid.*, p. 15.
[54] *Indian Tariff Board's Statutory Enquiry, Steel Industry*, 1926, I (pub. 1927), 10.

mainly of iron and steel and their products give a total nearly equal to that for cotton yarns and textiles, the largest item in the country's imports.[55] These totals indicate that India is as yet by no means independent in the supply of goods made of iron and steel.

IMPORTS OF IRON AND STEEL PRODUCTS
(In 1000's of Rupees)

	AVERAGE 1909–10 TO 1913–14	AVERAGE 1914–15 TO 1918–19	AVERAGE 1919–20 TO 1923–24	1925–26	1928–29	1929–30
Iron and Steel	111,745	96,100	210,107	180,697	202,434	172,063
Machinery and mill work	56,114	51,387	216,484	148,859	183,604	182,185
Hardware	31,704	27,945	57,881	51,957	52,328	50,665
Railway plant and rolling stock	61,121	34,821	109,252	49,954	——	——
For government account	27,959	12,498	28,084	31,485	——	——

To calculate iron and steel profits is not easy because the steel industry has operated only during admittedly abnormal times. No iron and steel company was flourishing before the War. There was great difficulty in establishing the first company and its venture in steel production was a hopeless failure. The Tata plant was very expensive to start and only because of the War demand did its business result in fair gains rather than in losses. Dividends of 6 to 20 per cent were paid for four of the best years but by 1922 earnings were unable to take care of depreciation and even preference shareholders were soon without dividends. Ordinary shares which were as high as Rs. 726 in 1921 were as low as Rs. 10 in 1926 and preferred shares that brought Rs. 1630 in 1918 sold for Rs. 25 in 1925. Nevertheless it is hoped that the assistance given through tariff legislation will enable this concern to survive, and perhaps after a few years to become again profitable. Two other companies, specializing more upon pig iron and coarser castings, should prosper for some years.

The production of iron and steel seems well on the way to permanent establishment. Indeed Indian producers of pig iron are already serious competitors in the world's markets, having become principal suppliers to Japan and other oriental countries and having caused alarm to the American industry by underselling it on both the eastern and western coasts.

[55] Motor cars constitute a rapidly increasing item also, amounting with cycles and parts in 1928–9 to over Rs. 77 million.

CHAPTER XIV

LABOR: SOURCES AND CONDITIONS

As in most industrial countries, it has been the lowest and most unfortunate class of the people [1] who have provided labor for the Indian factories. People accustomed to simple agriculture, menial service or handicraft, find the discipline of a factory particularly irksome and only when very hard pressed will they give themselves up to it. Nearly all the factory hands of India have come from the agricultural villages but it is not correct to call them, as is sometimes done, "farmers and land-owners." Most of them have had some fixed position in the village economic and social organization; some few actually own small tracts or are tenants with some degree of security, but the majority are from the laboring castes and landless. At most they may have the shadowy hereditary right to cultivate small plots in return for hereditary duties, usually of a menial character. Some have been village craftsmen who rank low in the social scale and are generally lacking in physical energy, education, ambition and efficiency. Even the meagre opportunities of pre-factory days became less with the disintegration of the village group after the building of the railways and many craftsmen turned to agriculture while others crowded into the towns. Some were drawn by the more attractive cash incomes but many came because this was the only alternative to slow starvation. Usually workers have come as temporary residents, leaving their families and other relatives behind. Since half their economic, and nearly all their family interest lies in the village, these workers never settle down to make the most of an urban occupation. They return to their villages every few months or at least every few years. Their children usually grow up in the country and when they come to

[1] The use of Poor Law children in the early cotton mills of England is well known; and almost as bad conditions prevailed in Switzerland. (See Rappard, *La Révolution Industrielle et les origines de la protection légale du travail en Suisse*, pp. 257–8.) In Japan the coal mines were first worked on a large scale with convict labor which has made mining unpopular until this day. In India an early mill-manager said that the cotton workers looked on mill labor as "jail-labor."

the city are as ignorant and ill-adjusted to city and factory life as were their parents and grandparents before them.

Bengal, which has the largest number of persons employed in factories, receives immigrants equal to twice the population of Calcutta—proudly called by its inhabitants, "the second city of the Empire." Over one and a quarter million come from the neighboring province of Bihar and Orissa and 343,000 are from the United Provinces. Most of these immigrants to Bengal are laborers for the factories and coal mines. Of them the 1921 Census of India states: [2]

> Only 8 per cent of the people of the country towns were born outside Bengal. The proportion in the case of Calcutta is about one third, but in the case of the mill town it is considerably over two-thirds. This extraordinary proportion is exceeded in Titagarh (a jute town a few miles outside Calcutta) where no less than 90 per cent of the inhabitants were born outside Bengal and in Bhadreswar where the proportion is 79 per cent. The figures are remarkable as showing to how great an extent industrial development in Bengal, as shown by the growth of these towns, is the work of the up-country people and not of the Bengalis at all. These towns are no more than colonies of up-country men and even though industrial progress has been going on for several decades the population still remains immigrant. A few workers have children with them who were born since they immigrated, but practically none have settled down and brought up their families to maturity to swell the number of the native born. It is therefore too much to describe the towns as colonies of up-country men. They are no more than temporary habitation.

In Bombay the proportions are even more striking. Since 1872, when 31.1 per cent of the people living in Bombay were born there, the percentage has declined steadily until in 1921 it was only 16 per cent. The remaining 84 per cent had come from far and near. Two hundred and thirty-five thousand had come from Ratnagiri, a densely populated area on the coast to the south of Bombay with a total population in 1921 of 1,154,000. That is, in 1921, 25 per cent more of the inhabitants of Bombay had been born in this little farming area of approximately Bombay's population, than had been born in Bombay itself.

What is true of Bengal and Bombay is true only in somewhat less degree of the other industrial areas. Yet considerable variation is found within an industry or a neighborhood. For example, the

[2] *Census of India*, V, Part I, page 116.

type of labor in the jute mills about Calcutta varies with the location of the mills. Those outside the city and to the south often employ a larger percentage of Bengalis, that is, of local laborers, who can come in from their homes in the surrounding villages, while those in the city and to the north, employ "up-country" people almost exclusively. In many jute mills a radical change has taken place during the past few decades and in some it is still in process. One mill, which in 1896 employed 80 per cent Bengalis, employed only 25 per cent in 1926. In some mills nearly all the hands are still local. In the cotton mills of Calcutta,[3] nearly all the labor is from outside.

In the cotton manufacturing centers of Ahmedabad, Cawnpore and Sholapur, the workers come more largely from the city or from the district. In both Ahmedabad and Sholapur, in 1921, over 600 of every 1000 inhabitants had been born in the city or the district.[4] Different mills in the same province sometimes show wide variation. For instance, a woolen mill in Punjab reported in 1908[5] that it drew all its labor from the cultivators living in the surrounding district. In one Punjab cotton mill, however, it was stated that the Punjabis "come to mill labor last of all," and in another, that all but five per cent of their workers had to be imported.[6]

In the coal mines the largest single group are the *Bauris,* of very low social rank.

> Comparatively few *Bauris* are ryots with occupancy rights, but the majority may probably be put down as under-ryots or landless day-laborers. They were well known as indigo cultivators and workers in the vats in the prosperous days of Bengal indigo, and nomadic tillage of *char* (washed in) lands is one of their characteristic pursuits.[7]

These people eat all sorts of meat, including rats, and are much addicted to strong drink.[8] The next largest group in coal mining are the *Santals,* a primitive tribe with no written language and "no bards to hand down a national epic by oral tradition."[9] They are crude agriculturists who now supplement their incomes by coal-mining. Their practices as to marriage are very loose and the

[3] *Report of the Indian Tariff Board on the Cotton Textile Enquiry Industry,* 1927, III, p. 334.
[4] *Census of India,* 1921, IX, Part 1, pp. 66 and 77.
[5] *Parl. Papers,* 1909, Cmd. 4519, p. 411.
[6] *Parl. Papers,* 1908, Cmd. 4292, App. F., p. 43.
[7] Riseley, *The Tribes and Castes of Bengal,* I, p. 81.
[8] *Ibid.,* p. 82.
[9] *Ibid.,* II, p. 225.

men are notorious drinkers. The remainder of the miners are recruited from similar groups and also from displaced laborers and menials from the villages.

Similar low-caste groups make up a large part of the factory classes in every part of the country. In 1916, in a large mill in the Central Provinces, fifty-one per cent of the hands were *Mahars* alone. At other times this figure has been higher. This caste, along with the *Holis* and *Dheds,* makes up the principal "untouchable" group in Bombay Presidency and the Central Provinces. They are scavengers and menials, corresponding to the *Chamars* in the north of India and the *Panchamas* in southern India.[10] In Bombay Presidency the same elements of the population are drafted into industry. At Sholapur, Ahmedabad and Bombay, it is always the lowest section of the village community that is shaken off to try its fortunes in the factory. "There appears to be a gradual drifting into Bombay of the great *Mahar* caste of all the Marathi-speaking districts."[11] Between 1911 and 1921 the numbers in Bombay of this and two other closely related castes, the *Dhed* and the *Holi,* increased by 60 per cent. In Madras Presidency 25 per cent of the unskilled industrial workers belong to the *Panchama* community and most of the others are of low rank.[12]

The accompanying table shows the proportion of men, women, boys and girls employed in factories coming under the Factory Act at intervals since 1895.[13]

AVERAGE NUMBER OF PERSONS EMPLOYED UNDER THE FACTORY ACT

YEAR	MEN	WOMEN	BOYS	GIRLS
1895	293,836	54,530	19,812	2,923
1900	372,617	68,610	23,106	4,623
1905	501,227	93,431	32,171	5,807
1910	624,945	115,540	43,273	8,753
1915	791,978	150,356	50,906	10,886
1920	986,367	184,922	55,503	11,933
1925	1,178,719	247,514	57,199	11,526
1927	1,222,662	253,158	48,028	9,534
1930	1,235,425	254,905	32,597	5,375
1931	1,173,372	231,183	21,920	4,912

[10] Russell, *Tribes and Castes of the Central Provinces,* 1915, II, p. 404.

[11] L. J. Sedgwick, I.C.S., Provincial Superintendent of Census, Bombay Presidency, in the *Bombay Labour Gazette,* March, 1922, p. 18; and *Census of India,* 1921, IX, Pt. 1, p. 30.

[12] *Census of India,* 1921, XIII, Pt. 2, Table XXII; Pt. IV, 314; Pt. V, p. 324.

[13] Clow, in *Bulletin of Industries and Labour,* No. 17, Table II; also *Statistics of Factories,* published annually by the government.

The percentage of men to the total number employed in 1895 was 79.1 and of women 14.7. In 1930 the percentage of men was 80.8, advancing to 81.9 in the following year. For women the corresponding figures were 16.6 and 16.2. The proportion of both classes increased, while since 1895 the decline in the percentage of children was from 6.2 to 2.6 in 1930 and 1.9 in 1931.

In the mining industry the figures tell a different story. In 1892 women and children constituted 39 per cent of the persons employed in mines and 60 per cent of the total hands working underground.[14] In 1930 roughly only 18 per cent of the underground workers were women and legislation had been adopted removing all women from underground workings by 1939.

There are various reasons for the small number of women employed in factories. First, most men come to the factories without their wives and children. Second, it is not customary for Indian women, even of the lowest classes, to work with or near men—especially of other castes. When employed, they are generally isolated in one part of the mill. Only a few of the main departments, such as reeling yarn, admit of this. With the increase in railway travel, together with the general emancipation of women, this condition is changing, but very slowly. Ahmedabad is somewhat exceptional and women employed in the mills there have more than tripled since 1914.[15]

This unequal distribution of the sexes indicates much as to the conditions under which the workers live, especially when the age-groups are taken into account. In both 1911 and 1921, seventy-two per cent of the workers in Bombay City were between the ages of 15 and 45 years. Men at these ages do not deliberately spend their time away from the opposite sex. This is especially abnormal in view of the fact that bachelorhood is practically non-existent for men in India. Apart from the extra expense involved when a man lives apart from his family, other factors enter in, such as the less careful attention given to the needs of the various members, the nervous strain of being separated from one's own wife and children and the temptations to irregular sex relationships. In Bombay City there were in 1921, 52 females to every 100 males while in Calcutta the number was 50. To have made the sexes equal in number in

[14] *Parl. Papers*, 1893, Paper No. 150.
[15] *The Royal Commission on Labour in India*, 1931, Evidence, I, Pt. 1, p. 89.

these two cities would have required the importation of nearly 700,000 women. It is not among the children that the discrepancy exists but among the people of active middle age. Little wonder that the "white slave traffic" is a serious problem.

The employment of children has been a great evil in the early periods of industrialization in most countries. While Indian children have suffered, the low wages of adults have made child labor a less marked feature in India than in Europe. Many children were employed in the early cotton mills and, as we have already seen, especially in the jute mills as "shifters." The coal mines also used many children, often under-ground. One mine reported in the early '90's that it had under-ground 151 men 59 women, 24 girls between nine and sixteen years, and 54 boys between nine and sixteen years.[16] That is, nearly half the under-ground workers were women and children; and children, often as young as nine or ten years, outnumbered the women.

The number of children employed now is small and is steadily declining, partly because of the greater strictness of the sections of the Factory Act regarding the employment of children and better enforcement of the law, but also because with shorter hours there is more pressure for efficiency. The largest numbers are still employed in the jute mills of Bengal, and here they are rapidly declining.[17] No other sort of work, except the hand weaving of carpets in the Punjab, can so successfully make use of child labor.

Probably the raising of the age limit of children from nine to twelve in 1922, also affects the number of girls employed. In India this period marks a great difference in maturity. Children mature early and girls become women—often they are actually married—before they are fifteen. In any case, after twelve it is no longer proper, according to Indian custom, for them to work along with men or with boys of their own age. The number of girls employed has always been very small and now they tend to disappear from factories. In 1912 one and one-tenth per cent of all those employed in concerns under the Factory Act were girls, while in 1925 this figure was only five-tenths of one per cent. In 1927 only one-fiftieth of one per cent of the hands in Bombay cotton

[16] *Return on Employment of Women and Children in Mines in East India, Parl. Papers,* 1893, Paper No. 150, p. 106.

[17] See Ch. XI.

mills were children.[18] and between 1925 and 1931 the number of children employed in the Bengal jute mills declined from 26,474 to 3,462.

Labor Conditions. A disheartening aspect of developing industrialism is that the mistakes regarding labor are generally repeated in each country. In certain respects, conditions of labor in Indian factories were worse than in the early factories of England, but in others they were more satisfactory. Certain improvements had become a part of the system before it reached India. For instance, machinery was more carefully guarded than it had been earlier in England and there was thus less danger from accidents. An English inspector, Jones, wrote in 1883–7 that no more serious accidents occurred than in England at that time, in works of similar size, but that "slight accidents" were of much more frequent occurrence.[19] Apparently this was owing to the first experience with machinery on the part of a large number of unskilled persons and to their long hours in a trying climate. There were some bad cases such as when "a boy of fifteen after working fourteen hours in a mill, including the whole night, was killed by being entangled in a cog-wheel." [20] Yet the managers and owners were reported as anxious to provide against accidents.[21]

Also much of what had been learned about the construction of buildings to secure proper strength, ventilation, light and cleanliness was introduced from England. The larger mills in India were erected by persons of considerable capital who secured the best plans possible from Europe. Inspector Jones found in 1883–7 that "at least half of the concerns could compare in most respects favorably with mills spinning the same counts in England" and that "the modern mills could vie with any mill in England." [22] Yet these excellent copies of British mills had their drawbacks, because they were not suitable for the Indian climate. The Indian workmen were too helpless to secure much consideration and the managers

[18] The Certifying Surgeon, Bombay, to *the Royal Commission on Labour in India*, 1931, Evidence, I, Pt. 1, p. 184.

[19] *Parl. Papers*, 1888, Cmd. 5328, p. 123. Besides often getting hurt these people were hard to cure. Inspector Jones adds: "It is often found impossible, owing to the superstition of the relatives, to keep an injured person in the hospital, and several have been removed . . . by a mob who have hurried the patient to the magic man. He, having waved a few peacock feathers over him and plastered the wound with dung, saying at the time a few prayers, often leaves him to die."

[20] Clow, *Bulletins of Indian Industries and Labor*, No. 37, p. 12.

[21] *Ibid.*, p. 114.

[22] *Parl. Papers*, 1888, Cmd. 5328, pp. 113, 115.

were slow to adapt the factory to Indian conditions, or to provide such common essentials as good drinking water and adequate toilet facilities. This appears to have been due not so much to unwillingness as to ignorance. The inspector stated: [23]

My time was in a great measure taken up with recommending sanitary and economical alterations in the working of the mills, which I had no power to enforce, but which, I may state, were eagerly welcomed and carried out by both managers and proprietors. . . . I seldom, if ever, made any recommendation which I thought would tend to the better conduct of the mill or amelioration of the condition of the workpeople which did not at once receive the sanction and adoption of the master.

The manager of one mill read the inspector's suggestions in regard to fencing various machines and then [24]

begged me to return with him into the mill and explain what I wanted guarded, as he did not know the names of any of the machines, excusing his want of knowledge on the ground of having only just been made manager, being raised to this responsible position from a seat in a lawyer's office.

These reports had to do with the cotton mills of Bombay Presidency. There is no similar evidence regarding the jute mills of Bengal but nearly everything indicates that very good arrangements prevailed. During the 1890's, some jealousy of Indian jute manufacture developed in Dundee, the principal center of that industry in the United Kingdom. A member of Parliament for Dundee visited India and was favorably impressed by what he found. He "thoroughly approved of the conditions of labor and commended especially the shifts, the conditions of women and children and the hours of work." [25] The Indian Factory Labour Commission of 1908 examined many mills and in general commented favorably. A typical statement closes their inspection notes: [26]

Here, as in almost all the jute mills on the Hugli, there is an excellent system of septic tank latrines, which in some cases are made available also for the population outside the mill premises. The arrangements could hardly be improved on, and similarly those for sanitation, water supply, etc., are generally admirable.

[23] *Ibid.*, pp. 115, 121.
[24] *Ibid.*, p. 115.
[25] Clow, *Bulletins of Indian Industries and Labour*, No. 37, p. 24.
[26] *Parl. Papers*, 1908, Cmd. 4292, App. F, p. 26.

It was also frequently stated that fencing and ventilation were "excellent."

In some other factories conditions were less favorable. In a match factory in Ahmedabad which in 1908 employed 225 hands from sunrise to sunset, there were no special rules for sanitation or ventilation.[27]

The nearest approach to the conditions of the early English factories was in the cotton gins and presses which sprang up throughout the cotton growing areas. The equipment was inexpensive, could be installed in any sort of building and could be operated after a fashion by persons with no mechanical training or experience. These plants operated at all hours of the day or night and used local labor of the lowest groups—generally women, and often small children. Furthermore they were often far removed from the large centers from which progressive ideas might penetrate to either workers or owners. This was one of the first types of "factory" to become fairly widespread in the country. Abundant raw material made India an exceptionally inviting field for starting gins and presses, especially after the introduction of railroads, and after the raw cotton trade had been made prosperous by the blockade of the American ports during the Civil War. The first independent power gin was started in 1864.[28] This industry was also well suited for the first adventures of embryonic capitalists possessing small funds, no mechanical knowledge or experience and very little taste for risk-taking. A boiler which was so small as to require, under the then existing regulations, no inspection; a few cheap, possibly second-hand gins and a shack of any sort—often an old residence—converted a local merchant and cotton trader into a "manufacturer."

A manager stated to the Bombay Factory Labor Commission: [29]

> I know of one ginning factory of 40 gins where there are only four doors and no windows. The length of this factory is 120 feet, and the doors 7 feet by 4 feet.
>
> The management of the engines is generally not in competent hands. They are chiefly worked by those who know how to produce steam, and who know absolutely nothing about proper level, soundness, the proper

[27] *Parl. Papers*, 1909, Cmd. 4519, p. 10.

[28] *Parl. Papers*, 1908, Cmd. 4292, App. F, p. 14.

[29] Evidence of Mr. R. F. Wadia, quoted in *Parl. Papers*, 1888, Cmd. 5328, p. 119. One gin was better than this as its owner stated to the Labor Commission that it was "well ventilated from all sides and through the roof." (*Parl. Papers*, 1909, Cmd. 4519, p. 160.)

fitting of the several parts, steadiness, cleaning of the boiler, etc. . . . The engines also are often worked when out of order, and being under 10 h.p. they are never examined by the boiler inspector . . . in many cases boilers rejected by the larger factories. I deal in machinery and . . . I have disposed of some of these rejected boilers which were quite unfit for use, but I got my money.

Machinery too was insufficiently fenced and serious accidents were frequent. Sometimes there were stones in the cotton, perhaps placed there to add to its weight, and some of the machines threw these with killing force. Fires also broke out occasionally, often from the explosion of cotton lint by a spark. As workers were likely to be covered with lint, they might become suddenly enveloped in flames. Women with saris about their heads were almost invariably burned to death on such occasions.

The Indian coal mines enjoyed decidedly favorable natural conditions. In the early days they were exceedingly shallow, the seams were exceptionally thick and workable, and during most of the year there was relatively little trouble from excess water. Yet labor in the mines was not regulated until 1901 and conditions were often very bad for the workers. About 1900 Lord Curzon found the conditions in the mines far from satisfactory and out of his investigations resulted the first Indian Mines Act. Lord Curzon says: [30]

I . . . asked Mr. Reader, the Officiating Inspector, for a special report. . . . What he told me was that, in his many inspections, he had repeatedly found an utter disregard for human life, resulting partly from ignorance, and partly from carelessness, and that many mines were conducted upon such inhuman lines—these were his own words—that some immediate remedial action ought to be taken. . . . In many of the mines the head gear and winding apparatus were unsafe. Elsewhere there was no attempt at proper ventilation. Frequently the managers were absent, and the work was proceeding under no sort of control. . . . In one case, in a Bengal coal-mine, Mr. Reader found two hundred and fifty people (men, women, children, and infants) at work, where he reported the ventilation as nil, the air as foul in the extreme with smoke and gases, and the conditions as unfit for human existence. . . . In two other gaseous mines, where the managers were absent, and incompetent substitutes had been left in charge, he found huge fires kindled in the working galleries, and naked lights suspended from the roof where the cutting was going on. . . . Again, he says that infants are allowed to be carried and put to sleep in foul places incompatible with health or safety.

[30] Quoted in Lovat Fraser, *India under Curzon and After*, p. 329.

Hours. One of the worst features of the early factories in all countries has been the long hours worked and India has been no exception. Hours in the hand trades and in farming have everywhere been long, and not until years after the introduction of the factory system was the demand for shorter working hours recognized. The English Statute of Apprentices of 1563 specified a day of twelve hours in summer and during daylight in winter. With the establishment of power factories either of these or longer hours have been worked. In many countries it has also been customary to work at night. Night working has not been general in India but the days have been long. Only in such continuous processes as iron and steel working has the twenty-four hour day been usual.

Again the cotton gins and presses furnished the worst conditions. Even before the use of electric light, shocking practices as to hours had developed. An acting factory inspector at Ahmedabad said in 1908 [31] that the usual day in gins was fourteen to fifteen hours, sometimes eighteen hours. The magistrate at Broach in the same year [32] said that gin women worked up to seventeen and eighteen hours. The following painful description from men operating these factories is from the evidence before the Bombay Factory Labor Commission of 1885. Mr. R. F. Wadia, a manager stated: [33]

> In ordinary seasons, that is when work is not very pressing, the engine starts between 4 and 5 A.M. and stops at 7, 8 or 9 P.M. without any stoppage during the day. The hands work continuously all these hours, and are relieved by one another for meals. In busy seasons, that is in March and April, the gins and presses sometimes work both night and day, with half an hour's rest in the evening. The same set continue working day and night for about 8 days, and when it is impossible to go on longer, other sets of hands are procured from Bombay if they can be found. . . . Both the men and the women come to the factories at 3 A.M., as they have no idea of the time, and they wish to make sure that they are at the factory by the time it opens, *i.e.*, 4 A.M. I have 40 gins in one of my factories at Pachora and I have only 40 women attending these 40 gins. I have only eight spare women. I never allow these women off the gins. I am not alone in this respect; it is the general system. There is no change of hands except at meal times. The hands that work from 4 A.M. to 10 P.M. are paid from 3 to 4 annas per day. All the factories pay at this rate. Sometimes we pay our hands 6 pie as a bonus. . . . I am person-

[31] *Parl. Papers*, 1909, Cmd. 4519, pp. 8–9.
[32] *Ibid.*, p. 29.
[33] *Report of the Bombay Factory Labor Commission, Parl. Papers*, 1888, LXXVII, No. 321, pp. 13–15.

ally very largely interested in this matter, being a proprietor, secretary and treasurer. . . . Those working these excessive hours frequently died.

Mr. Drewett's description is nearly as strong: [34]

The ginning season lasts about eight months, about five of which the hands work 5 A.M. to 10 P.M., and the remaining three months they work day and night. The hands are mostly women. Gins and presses never stop for meals; as a rule the hands take their meals at the gins, and he has often seen them taking their food and supplying the gins at the same time. He has often seen them supplying the gins thus mechanically three parts asleep, and a child at the breast sucking one minute, and throwing cotton in the machine the next. They go on working day and night until they are completely worked out. He has frequently heard of their going away sick, but has never heard of their death. He has himself worked day and night without sleep, but has never been ill through doing so. He has had Gaddum's Press working day and night for three months and has worked himself an average of 18 hours a day during this period. The year before last he worked day and night in the ginning factory he was superintending. He thinks it will be found that the women had worked day and night for as long as a week at a stretch. He does not think there is a double set of children anywhere, so they must have worked day and night. The women would have worked 23 out of 24 hours; speaking of 23 hours he means that the woman was relieved by her friends or relations. . . . The women are looked on as part of the gins, and they belong to the establishment, and two or three hours is the longest time they can be absent out of the 23 without any notice being taken of it.

Testimony of Soorji Hemraj.[35] Sometimes in his press they worked two days and two nights without stopping. When they worked 48 hours at a stretch they stopped for half an hour in the evening. The women worked 48 hours the same as the men. They have worked eight days and eight nights without stopping, and he himself has been ill through working these excessive hours. After working eight days without stopping, they are compelled to get another set of hands from Bombay and work with two sets.

Testimony of Tanu Rapu, Overseer.[36] When there is not much work they commence at 6 A.M. and stop at 7, 8 or 9 P.M. When there is much work they work from 4 A.M. till 10, 10:30 or 11 P.M. The men and women sometimes work for 10 or 12 days and nights at a stretch without rest.

The obvious comment is that flesh and blood could not be expected to endure more. Such strain is occasionally demanded of soldiers in a very strenuous campaign, but where in the annals of

[34] *Ibid.*
[35] *Ibid.*
[36] *Ibid.*

either industry or war have mothers been compelled to nurse their young and endure such punishment? Attempts to ameliorate the conditions did not limit hours of working but provided that women and children employed at night should "work in shifts." The problem was not to do away with night employment but to prevent the same persons working both day and night for several "days on end."

Employers alone were not wholly responsible for the day and night working. Women were so anxious for money that they would frequently work in one gin during the day and in the same or another gin at night. A man who had to do with a large number of gins said as late as 1908 [37] that one must give the foreman "distinctly to understand that he is liable to a severe penalty if he provides women for night work who have been employed elsewhere during the day." Men also sometimes undertook to double their pay in this way.

In some respects the system was aggravated by the contract system of employment, the factory owner paying to a labor contractor so much per bale of cotton ginned for furnishing all the labor, except his mechanical staff. As noted elsewhere,[38] this system is characteristic of the early stages of industrialization before factory owners have developed the ability to organize and direct a large group of people as a single force. The labor contractor has no concern for the work as a whole and the factory owner has none for the working force. The factory owner seeks the lowest possible labor cost, and some coolie driver provides whatever workers can be mustered at the lowest possible wage and then drives them more cruelly than any tax farmer ever harried the poor.

Hours in coal mining have always been irregular and while people have sometimes worked very long shifts these have not necessarily been forced upon them. Groups of relatives and friends came from villages several miles away and often preferred to work up to twenty-four hours before returning home for a period of rest which might be as long or longer.

As a result of the Berlin Conference on Labor conditions in

[37] *Parl. Papers*, 1908, Cmd. 4519, p. 73. Even the present Factory Act prohibits a manager from employing any person "whom he knows, or has reason to believe, to have already been employed on the same day in any other factory" (Ch. IV, Sec. 25).

[38] See Ch. VI.

1890, inquiries were made[39] as to conditions in the Indian coal mines, and while they were found in some respects worse than in factories, it appeared that hours were very casual, especially for those that worked below ground. The agent of one company stated[40] that "All women and children work in shifts or sets of six to eight hours and only one such shift each day. The mine works day and night, so that from three to four shifts or relays of work-people go down." It is clear from this testimony that women and children were working at all hours of the night but that the hours were hardly excessive, except for children. Men engaged at daily rates for such work as pushing cars, or operating winches, were usually reported as working for about ten hours but only two shifts were employed. It is probable that the two shifts occupied most of the twenty-four hours.

It has always been difficult to regulate the working of Indian miners. Even now it requires a great deal of persuasion to induce the men to remain underground. A guard of fierce demeanor with a very big stick is frequently seen threatening the loafers who prefer the surface.

Hours have been long in both the cotton and jute factories. The mills varied in their policies at different periods because of fluctuations in trade activity, especially in the jute trade whose margin between supply and demand has been rather narrow; but from the founding of the first mills until near the '90's, daylight hours were common. From about 1887 electric light began to be placed in mills and within twenty years became almost universal: winter hours were lengthened accordingly. There is no great difference between the records of the two industries; at least nothing to demonstrate that one was more humane, more eager to allow reasonable hours, or to abide by the law.

However, taken as a whole, hours have been longer in the jute mills, where, until the past few years, a shift system was applied. In the earlier years, the jute mills operated daylight hours, sometimes up to fifteen hours per day and ninety hours per week. In slack times the mills have, by agreement, reduced either the hours per day or the number of days per week, or both. With the introduction of electric light about 1890, the fifteen hour day became

[39] See *Return on Employment of Women and Children in Mines in East India, Parl. Papers*, 1893, Paper No. 150.

[40] *Ibid.*, p. 18.

standard. In 1908 the agents of two mills reported that for seven out of the preceding ten years they had worked fifteen hours per day for an average of 305½ days per year.[41] Weavers from one of these mills claimed the hours were even longer, namely sixteen per day.

Very early a shift system was adopted which made it unnecessary for hands other than weavers to work more than about ten hours. The day of fifteen hours was divided irregularly and three men kept two men's work going continuously.[42] The machinery could thus be kept in operation for full ninety hours per week. There were a few exceptions to the shift in special parts of the mills, such as sack-sewing and transporting, where a shorter single shift was practical. Within the mills the case of the weavers was exceptional. In order to give greater regularity to the cloth one weaver was made responsible for the loom during the entire day of fifteen hours; but the weavers were relieved by one helper for each four to seven looms and this allowed time for meals and a little rest during the day. The helpers were so few, however—unless the weavers chose to pay for them out of their own wages—that these hours were very long. Theoretically the system made hours for most hands fairly short; but there were many irregularities and when hands failed to appear others were often compelled to continue, regardless of the number of hours already worked.

With no effective legislation in force, it was naturally the children who suffered most from this irregular system. Though the lower age limit was only 9 years, the Factory Labor Commission of 1908 found infractions of the law. Their report stated [43] that many children "not more than 6 or 7 years old are employed for seven or eight hours a day, and the proportion of under age children employed as half-timers probably amounts to 30 or 40 per cent of the total half-timers." The Commission also estimated that 25 per cent of the full time workers under 17 were not yet 14 years of age.[44] These, and doubtless many younger children, worked 10, 11 or more hours per day.

Both women and children suffered a great deal under the hour arrangements, both from the length of actual working hours and

[41] *Parl. Papers*, 1909, Cmd. 4519, p. 267.
[42] See Ch. XI.
[43] *Report, Parl. Papers*, 1908, Cmd. 4292, p. 16.
[44] *Ibid.*, p. 17.

from the frequent necessity of spending from early morning until late evening at the mill in order to meet the requirements of the shift system. A mill manager gave written evidence of this in 1908 as follows: [45]

It is not the length of individual working hours that is complained of, however, but the manner of their distribution. It is one thing to work during a natural working day, and quite another to get up at 4 or 4:30 A.M. according to the distance to be travelled when on the morning shift, and not get home until 9 or 9:30 P.M. when on the evening shift; when after that the evening meal has to be prepared. And that too, in all weathers during the cold, foggy, winter mornings, and all through the rainy season.

The Commission's factory inspection notes of particular mills also illustrate the situation.[46]

The operatives are mostly Bengalis living in surrounding villages up to 3 or 4 miles off. The first warning mill whistle is blown at 3 A.M. Enquiry shows that an half-timer, a child of not more than 7 years, selected by the Commission at random, had to leave his home every morning at 4 A.M. and walk two miles to the mill.

It is not stated at what time this boy returned home. Possibly he got off earlier, but it is not unlikely that he returned with his father at 8:30 P.M. Workers in other groups stated that they could not get to bed until 11 P.M.[47] For a family with children, some of whom would probably be asleep, an hour and a half would be consumed in walking four miles through the darkness after a long weary day. Another would doubtless be spent in preparing the evening meal, eating, doing the chores and getting to bed. By that time it would be near 11 P.M. And "the warning whistle is blown at 3 A.M."

About 1911 the hours were reduced to 13½ per day and 81 per week. During the World War the urgent demand for bags for military purposes kept the mills busy for long hours. For some years during the post-War depression the 13½ hour day and the four day week were operated in only a part of the mills. Several began single

[45] *Parl. Papers*, 1909, Cmd. 4519, p. 277. Mr. Small. See Workers' statement, p. 278, Witness No. 193.

[46] *Parl. Papers*, 1908, Cmd. 4292, App. F., p. 25.

[47] *Parl. Papers*, 1909, Cmd. 4519, pp. 270, 271, Witnesses Nos. 182 and 184, p. 278, Witness No. 192. Five jute weavers claimed that in the mill where they were employed 315 of 325 weavers were Bengalis living in villages 2 to 4 miles away, and that they got up between three and four A.M. and did not reach home until 8:30 or 9 P.M.

shift working for six days of nine hours each. In both, the total was thus made 54 hours per week. This single shift system has now been adopted in nearly all, though this may be temporary.

At its best the shift system does very well; but if the mill management wishes to deceive the factory inspector and employ hands over time it is usually possible to do so. Factory inspectors frequently state that they are helpless, and even managers find it impossible to prevent jobbers from bringing up the complement of hands by drawing from persons supposedly off shift at the time.[48]

In the early period, cotton mills also worked during the full daylight hours. There were no restrictions on labor except in Bombay Presidency, and conditions there were by no means satisfactory. Workers became exhausted, sometimes falling "fast asleep on the mill floor directly they had thrown the strap off their machines and before some of their fellow hands" were "able to get out of the mill doors." [49] Women and children were employed but generally in smaller numbers than in jute mills. Women worked shorter hours, nearly always in the winding and reeling departments, and children worked in the spinning rooms. Even in Bombay the law allowed children of seven years to work nine hours per day, though it called them "half-timers."

By 1908 conditions had changed little though individual mills had improved. The Madras mills found the shorter day of about twelve hours more economical than a longer day. The Elgin mills in Cawnpore worked the 12 hour day between 1900 and 1908 and found it better than thirteen, fourteen or fifteen hours.[50] But most mills operated as many hours as possible. A mill-owner in Ahmedabad said that the hands in that city "didn't drink because they did not get time to drink, and from this point of view long hours were an advantage." [51] One of his competitors there suggested that if the government were to fix the hours at all, it should limit them to fourteen per day with two fifteen minute stops at nine A.M. and two P.M. A manufacturer in Delhi had the backing of several others in the same business when he proposed that the hours should be not less than fifteen with a mid-day interval of half an hour.

[48] See Ch. XI.
[49] Inspector's *Report, Parl. Papers,* 1888, Cmd. 5328, pp. 112, 123.
[50] *Parl. Papers,* 1909, Cmd. 4519, p. 215.
[51] *Ibid.,* p. 17.

An agent of three mills at Agra said they "had always worked from daylight to nine P.M." [52] One of these mills was among the first to be equipped with electric light and these were its hours from 1887 to 1908. The only stop was for half an hour at noon, and the longest days were 14½ hours while the shortest were 13¾ hours.

An Englishman who took part in the movement to reduce hours writes of conditions in 1905: [53]

> There was a "boom" in the mill industry. The mills were pouring out their products, and great profits were being made. The value of mill shares rose in sympathy. Mill managers in the happy possession of the electric light continually extended their hours of labour; mills without electricity clamoured for installations. Very soon there were sixteen mills working from at least 5 A.M. to 8 P.M., and some of these even continued until 8:35 P.M. or longer. Allowing for the statutory half-hour stoppage in the middle of the day, the operatives had to do from 14½ to 15 hours of actual labour, and I believe there were even worse cases. The other mills possessing electric light were working from 13 to 14 hours. The operatives never saw their homes in daylight. They were the victims of the masters, and, as I satisfied myself, the unwilling victims. It must be remembered that they were working in fierce tropical heat, in a badly drained district full of mephitic exhalations, within mills some of which were old and dimly lighted, where windows were never opened and the foul air was stifling. . . . Mr. Bomanjee Dinshaw Petit used even stronger language, and declared that there were 32 mills working 15 hours a day.

As to the illegal employment of children, conditions in the cotton mills, though bad, were "very much better than those in the jute mills of Bengal." [54] About ten per cent of the half-timers examined by the Commission of 1908 were under nine years of age.[55] These children were quite commonly employed until after eight o'clock in the evening and for their full seven hours without any rest interval.[56] In Agra "one set of half-timers in each mill was employed from 1:30 P.M. to 9 P.M." [57] Schools inside the mill compounds were often mere traps for keeping the children within reach. The hiring of children as full-timers was an evil common to both the jute and the cotton factories. This meant that children

[52] *Ibid.*, pp. 170–1.
[53] Lovat Fraser, *India under Curzon and After*, p. 332.
[54] *Report of the Factory Labour Commission, 1908, Parl. Papers*, 1908, Cmd. 4292, p. 16.
[55] *Ibid.*
[56] *Ibid.*, p. 18.
[57] *Ibid.*, p. 14.

of from twelve to fourteen years often worked fourteen or fifteen hours per day.[58]

The hands made the same complaint as at Calcutta in regard to early starting. Bombay workmen had no time-pieces, there was no public clock in their district and the municipality forbade the blowing of sufficiently early whistles. The employees therefore came and slept outside the mill gate until it was opened.

Mill owners did not like to take the blame for long hours and said that the hands demanded the opportunity to earn extra wages. "The 13 hour day was practically forced upon the owners by the men," said Sir Sassoon David in 1908.[59] This was echoed from all over the country, and in some cases it was certainly true, but some of the managers and most of the workers denied it. Cotton hands at Ahmedabad told the Commission in 1908 that[60] "they worked long hours of their own accord because, if they refused, others would be brought in to take their places, and besides they liked the extra pay; but they were exhausted by the long hours and their sight suffered from working by electric light."

Moreover these long hours were not broken by rest periods at noon. In the jute mills the machines were kept in operation throughout the day by means of the shift system and a few extra weavers. Even without shifts some factories made no stops but expected their hands to eat while tending their machines. The owner of one ginning factory wrote of his practice thus:[61]

> The factory usually works from 5:30 A.M. to 8 P.M. The average number of hours a person works is about 12; as for the intervals of rest, there is no fixed time or rule, but generally the laborer carries the stuff from place to place and when there is no more space for him to fill he stops, and waits till that stuff is passed through the machine, and then begins again."

[58] Bad as these conditions were, they were generally far better than existed in the early mills in England less than a century before. There children of seven years worked from five A.M. to seven P.M. and often to nine P.M. In many cases they worked night shifts, and to cap it all they were housed in apprentice barracks which were sometimes "a hell of human cruelty." See for instance, H. and Barbara Hammond, *The Town Labourer, 1760–1832*, pp. 146–7. Until the new textile code was adopted, in the southern mills of the United States sixteen-year-old girls often had to stand at the machines from 6 P.M. to 6:15 A.M. with a fifteen minute recess for lunch about midnight." P. Blanchard, *"Labor in Southern Cotton Mills."* Quoted by Patterson, *Social Aspects of Industry*, p. 232.

[59] *Parl. Papers*, 1909, Cmd. 4519, pp. 76–77.

[60] *Parl. Papers*, 1909, Cmd. 4292, App. F., p. 2.

[61] *Parl. Papers*, 1909, Cmd. 4519, p. 160.

This was somewhat appropriately called the "simultaneous" shift, and appears to have meant that all shifts worked simultaneously! The same system continues today in many concerns though no longer under that name. The employer uses certain "extra" hands who are supposed to relieve the others at irregular times for meals and other necessary purposes. In this way a plant can be continuously operated but the system obviously admits of great abuse. Factory inspectors accepted a situation in which sufficient "extra" hands were enrolled to make the average hours no more than the minimum. But managers and foremen often either falsified the register or allowed relatives and favorites such freedom that the concern was operated by a very inadequate staff who got little or no time for meal-taking or for rest.[62]

After about thirty years, factory legislation brought a real change in hours. The first Act, in 1881, concerned only children between the ages of seven and twelve, whose hours it limited to nine per day. The Act of 1891 made little change. Until 1911 men, women and many children still worked twelve to fifteen hours. Inspection was carried out by ex-officio amateurs, already over-loaded with other duties. In 1911 a more comprehensive Act was adopted. Inspection was put on a more business-like basis and, considering the general backward state of the country, conditions have since been fair. Considerable leeway has been allowed to managers in the matter of hours and intervals and in some cases these have been abused. But by legal enactment and by personal administration both hours and conditions of work have been steadily improved. Since 1922 legal hours are ten per day and sixty per week and night work is prohibited for both women and children. Moreover, children are now employed only to a very small extent. Most women work less than the stipulated ten hours and inspection is reasonably well carried out especially in the larger centers. As compared with other countries in Asia, India is the leader in respect both to the letter of the law and its administration.

Holidays. Regularly recurring holidays were of course un-

[62] Recently a Karachi flour mill was given "an exemption from the rest interval" so that with two sets of hands it operated for 24 hours each of six days per week. The factory inspector justified this as ten-hour working because, he said, "the people sit down and watch the machines." (Royal Commission on Labour in India, 1931, *Evidence*, I, Pt. 2, p. 83.)

known to ancient India. There were regular market days and at longer intervals a number of festivals. These were not the same for the entire country but varied according to the district and especially according to the religion of the particular community; even within a given district and religion there were differences according to caste. Life was geared to a slower pace and neither physical fatigue nor spiritual custom demanded regular days of rest.

The introduction of a foreign government whose officials observed Sunday as a day either of rest or of worship made little difference to Indian custom in this regard. When factories were started, the practice as to holidays varied not only with the activity of business but with the extent of British influence and with local custom. In the more Europeanized communities Sundays tended to be observed. Government offices and such institutions as banks made the day a holiday and European-owned factories tended to do the same. This was partially to satisfy the Europeans concerned but there was also the need for an occasional day for cleaning the machinery and setting things in order. Even Indian-owned factories began to adopt the practice.

Bengal was the chief European center and the Bombay Factory Labour Commission of 1885 stated that: [63]

> On the Bengal side the mills and other factories close on Sundays, and in Bombay the large G.I.P. and B.B. & C.I. (railway) workshops, employing between 6,000 and 7,000 hands, certainly do so.

The railways were long in the hands of Europeans so it was quite natural that their shops should recognize the European Sunday. Cawnpore and other factory centers in the Northwest, largely dominated by Europeans, did likewise.[64] Yet even where European custom was most influential, the wishes of the laborers were often met by substituting several of the principal Indian festival days for Sundays.

Industries controlled by Indians, such as the Bombay cotton mills, and factories in outlying centers in Bombay and Madras Presidencies, even in Madras itself, long paid little attention to

[63] *Parl. Papers*, 1888, Paper 321, p. 10.
[64] *Report on Working of the Indian Factory Act, Parl. Papers*, 1889, LVIII, Paper No. 124, p. 33.

Sundays. Inspector Jones stated in 1887 that there was no half-holiday on Saturday, adding: [65]

> Sundays are working days although some firms, especially European, stop alternate Sundays, and in some cases one Sunday a month.
>
> On these stopping days, however, the hands are required to come to clean their frames, being allowed to leave the mill at different times varying from 10 A.M. to 1 P.M.
>
> Native holidays vary greatly in different districts and also owing to the castes of the preponderating workpeople. The average native holidays given are fifteen in the year: but on only five of these are the hands allowed to remain away all day; on the remainder they are kept the usual time to do the necessary cleaning.

The factory inspector at Madras gave a similar report: [66]

> The average number of full holidays given by any of the mills is twelve days; the Hindus working or being required to work on some of their most important feast days. . . . I consider the resting days and holidays insufficient, and think that adults should have four Sundays given them in a month in addition to their own important annual feast days. At present the mills allow two days in the month; they are only partial holidays (cleaning days). The operatives have no leisure whatever to attend to their domestic affairs.

At Broach, in Bombay Presidency, no Sundays were observed and only ten or twelve other days were treated as holidays. While the Bombay Factory Labour Commission had mentioned the observance of Sundays in Bengal and the Bombay railway workshops, they too were impressed by the fewness of holidays, stating that [67] "On an average only fifteen holidays are given throughout the year in Indian factories, while in England, besides ten holidays, there are 52 Sundays and 52 half-Saturdays, making a total of 88 days altogether." Even some of the outlying cities, however, such as Ahmedabad and Vizianagrum, where a jute factory was located, observed most Sundays and some Indian holidays.

Indian workmen found continuous working for long days trying enough; doubtless their desire for respite had much to do with the increasing popularity of regular holidays. With the recent drive by the masters for greater efficiency in order to meet outside com-

[65] *Parl. Papers*, 1888, Cmd. 5328, p. 114.
[66] *Report on Working of the Indian Factory Act, Parl. Papers*, 1889, LVIII, Paper No. 124, pp. 23–4.
[67] *Report, Parl. Papers*, 1888, Paper No. 321, p. 10.

petition, this has become of still greater significance to the workpeople. At first the mills were stopped for perhaps only one or two Sundays a month with an Indian holiday substituted when that was possible. Gradually the number of Sundays was increased until now the weekly holiday is not only stipulated in the Factory Act but is recognized by everyone as desirable. With the exception of about a dozen Indian holidays the factories choose Sundays for these weekly rest-days. The average number of holidays for the Bombay cotton mills, which may be taken as representative, is 55 to 57 per year. The Factory Act requires that all Sundays be holidays unless the manager has given due notice that some other day is to be observed in its stead; and in no case shall a person be employed for more than ten days without a full day of rest.

The laboring people who keep the Indian factories running have come from a wide area and from social strata whose economic opportunities have been very meagre. The more the industries have grown the greater has been the disintegration in the villages and the more numerous the people forced to find new means of livelihood. At first these recruits found factory conditions very unpleasant. Sometimes the buildings and machinery were dangerous, the work was hard, the days were terribly long, wages were not high and the position was very insecure.

Conditions are still far from ideal but a great change has occurred. Mainly through the influence of the government and legislation—some of which was for the benefit of British manufacturers, but also through the stirring of public opinion—safety and sanitation have been much improved. It has often been truly said that the factories are more healthful than the workers' houses. Hours have been reduced to ten per day for all; and women and children can be employed only during relatively short daylight hours. Holidays have become regular and every phase of the worker's treatment has been bettered. For many years a great share of these reforms were legal rather than actual; but during the past two decades real progress has been made.

CHAPTER XV

WAGES: ADDITIONS AND SUBTRACTIONS: DEBT

To understand wages and the standard of living in the factory industry of any oriental country one must keep clearly in view the conditions in the districts from which the labor is recruited. Occidental writers have often thought factory wages unduly low in the Orient because they compared them not to other wages there but to wages in Europe or America. While industrial wages are not the same as agricultural wages in India, the two are closely related. With 90 per cent of the people living under rural conditions and nearly 75 per cent actually dependent upon agriculture and pasturage, the group of about four-fifths of one per cent [1] who work in concerns under factory organization must be very much influenced by agricultural conditions. There is, in fact, a considerable movement back and forth between farm and factory according to the season and the prosperity of these alternate employments. The opportunities to earn in agriculture have a very direct bearing upon what it is possible for workers to secure and necessary for employers to pay in factories and mines.

But we must consider factory wages not only in comparison with earnings in agriculture in general but with the earnings of the lowest and most unfortunate part of the agricultural group. Incomes throughout rural India are notoriously low, and for the group which furnishes perhaps 95 per cent of the factory labor they are lower still. One of the most experienced and able of the British officials in India is quoted as follows: [2]

> I do not hesitate to say that half our agricultural population never know from year's end to year's end what it is to have their hunger fully satisfied.

The factory working group surely comes from the hungry half of this population; indeed, almost wholly from the hungriest quarter

[1] This figure is for British India alone, where most factories and mines are located.

[2] Sir Charles Elliot, quoted by Wm. Digby, C.I.E., in *Prosperous British India*, p. 509.

or eighth of it. Although industrial wages have been generally higher than earnings in agriculture and the rural trades, their level has been greatly influenced by the surrounding poverty.

Owing to the peculiarities of the history of Indian currency, it is almost impossible to give figures for gold prices and wages during the period of industrialization. While gold would be more readily interpreted in terms of the moneys of the world, it would give a much less adequate picture of the situation than the rupee furnishes. The Indian has been paid, and has made his purchases, in rupees in a market in which gold values had comparatively little influence. Rupee prices, with all their vagaries, have suffered much less fluctuation during the past 65 years than have the prices of most countries on a gold standard, as is clearly shown by the following table.[3]

WHOLESALE PRICE CHANGES IN INDIA, ENGLAND, AND THE UNITED STATES

I

YEAR	INDIA	ENGLAND	UNITED STATES OF AMERICA
1870	100	100	100
1895	102	65	61

II

1895	100	100	100
1913	138	137	141

III

1914	100 (July)	(1913) 100	(1913) 100
1920	216	307	221
1926	148	148	143
1929	141	137	136
1932	91	102	93
1933	87	100 (Jan.)	94

Because the gold price of silver was falling roughly in accordance with the gold price of commodities during the period 1870–95, rupee prices remained nearly stationary. During the period 1896–1915 the Indian currency was definitely connected through the gold-exchange standard with the currencies of the gold using

[3] Table II is taken from H. Stanley Jevons, *Money, Banking and Exchange in India*, Indian Government Press, 1922, and Table I is constructed from index numbers given in the same work, pp. 270–71. Table III is from *U.S. Bureau of Labor Statistics* and *The Bombay Labour Gazette*.

countries. Indian prices, especially the prices of goods entering into foreign trade, tended, therefore, to follow the world trends. The same has been true since the restabilizing of the rupee about 1925. But between 1917 and 1921 the rupee was allowed to rise in terms of sterling much more than sterling fell in terms of gold, thus cancelling a part of the great price fluctuations which gold standard countries experienced. It appears, therefore, that the best picture of Indian wage movements can be obtained by quoting wages in rupees. I begin, therefore, with a table showing the sterling and dollar exchange rates of the rupee.[4]

Year	Average Rate of Exchange per Rupee in Shillings and Pence	Equivalent Value in Cents*	Year	Average Rate of Exchange per Rupee in Shillings and Pence	Equivalent Value in Cents*
	s. d.	cents		s. d.	cents
1873–74	1 10.351	45	1902–03	1 4.002	32
1874–75	1 10.221	45	1903–04	1 4.049	32
1875–76	1 9.645	45	1904–05	1 4.045	32
1876–77	1 8.491	41	1905–06	1 4.042	32
1877–78	1 8.790	43	1906–07	1 4.084	32
1878–79	1 7.761	41	1907–08	1 4.029	32
1879–80	1 7.961	41	1908–09	1 3.964	32
1880–81	1 7.956	41	1909–10	1 4.041	32
1881–82	1 7.895	41	1910–11	1 4.060	32
1882–83	1 7.525	41	1911–12	1 4.083	32
1883–84	1 7.536	41	1912–13	1 4.058	32
1884–85	1 7.308	41	1913–14	1 4.070	32
1885–86	1 6.254	39	1914–15	1 4.004	32
1886–87	1 5.441	35	1915–16	1 4.087	32
1887–88	1 4.899	35	1916–17	1 4.148	32
1888–89	1 4.379	35	1917–18	1 4.532	34
1889–90	1 4.566	35	1918–19	1 5.544	36
1890–91	1 6.089	35	1919–20	1 9.690	44
1891–92	1 4.733	34	1920–21	1 8.657	42
1892–93	1 2.984	30	1921–22	1 3.849	32
1893–94	1 2.546	30	1922–23	1 3.764	32
1894–95	1 1.100	26	1923–24	1 4.46	32
1895–96	1 1.038	28	1924–25	1 5.51	36
1896–97	1 2.450	28	1925–26	1 6.08	36
1897–98	1 3.406	30	1926–27	1 5.902	36
1898–99	1 3.978	32	1927–28	1 5.93	36
1899–1900	1 4.067	32	1928–29	1 5.97	36
1900–1901	1 3.973	32	1929–30	1 5.85	36
1901–02	1 3.987	32	1930–31	1 5.78	36

* Cents reckoned at par.

Prices and wage statistics for India[5] are meagre for all periods; they tell us least about conditions in the earlier stages of factory industry. Wages in general apparently rose markedly, especially in certain areas, about the time of the first establishment of factories,

[4] *Index Numbers of Indian Prices, 1861–1926*, Table IX, and Addenda.

[5] See statement by the Finance Member, Sir Basil Blackett, *Report of the Royal Commission on Indian Currency and Finance*, 1926, IV, p. 6.

that is just after the middle of the century. One authority states that, in the neighborhood of railways, the wages of coolies (representing unskilled labor) and of carpenters (representing skilled labor) doubled between 1830 and 1860.[6] The increase appears, however, to have been more or less local and temporary,[7] depending upon such conditions as the establishment of tea and coffee plantations, the building of railways, the starting of factories and the opening of mines, besides numerous activities undertaken by the government after the Mutiny and the subsequent extension of its rule. The Crimean War and the American Civil War also led to rising prices which had some temporary effect upon wages.

In 1875 the government began to collect wage data, although for a somewhat heterogeneous group of workers, and with a wholly inadequate organization. These show that wages for both agricultural and skilled labor remained remarkably stable during the eighteen years 1873–91.[8] Such statistics as are available for that period and up until 1895 indicate that there was a slight rise in factory wages, though other wages, such as those paid by the British Indian Steam Navigation Company to sailors, and by the government to its factory hands, remained, in the majority of cases, almost unchanged.[9] Information collected by the government in 1892 showed that Bombay cotton-mill wages had remained at about the same level since 1860.[10] Much the same story came from the jute mills. Indeed, from both cotton and jute mills there was considerable evidence presented indirectly which showed that employers had frequently tried to reduce wages, but with little success. According to government figures, wages for the coolies and carpenters, just referred to as having doubled between 1830 and 1860, were slightly less, in 1892 than in 1860.[11]

For the period 1890–1912 better figures are available from an elaborate survey published in 1914.[12] From 1912 onward, that is, roughly, for the War and post-War periods, we are dependent on figures supplied over a part of the time by the government's annual

[6] Sir Bartle Frere, quoted by N. A. Moos, *Parl. Papers*, 1892, XXXVI, Pt. V, Cd. 6795–XI, p. 134. Lord Brassey quoted to a similar effect for the period after 1853.

[7] Dadabhai Naorji, *The Poverty of India*, p. 83.

[8] *Parl. Papers*, 1895, LXV, Cd. 7060–II, p. 272.

[9] *Prices and Wages in India*, 36th Issue, pp. 208–211.

[10] See statements of the Collector of Bombay and the Inspector of Factories for Bombay, in *Parl. Papers*, 1892, XXVI, Pt. V, Cmd. 6795–XI, pp. 128, 129, 134–6.

[11] *Parl. Papers*, 1892, *op. cit.*, p. 128 n.

[12] Datta, *Enquiry into the Rise of Prices in India*, Indian Government Press, 1914.

volume *Prices and Wages in India* and upon locally collected data of which the best are those for Bombay, collected by the Labor Office established there in 1921.

The course of wages varies widely as between different areas and industries. Factory wages have not risen as rapidly as agricultural wages, apparently because the former were considerably higher in the earlier stages and improved communications have led agricultural workers to go more freely into the towns, thus forcing a closer correspondence between the two.

Since plantation employment has been so closely related to factory industry, competing with it for the cheaper labor of the country, wages in the tea-gardens have a direct relation to factory wages. An estate in Assam paid men workers Rs. 7 per month from 1897 to 1899, thence Rs. 6 until 1915; the rate was again Rs. 7 from 1915 to 1921 when it was raised to Rs. 8. The old "apprenticeship" arrangement, whereby workers received lower rates for the first period of employment, has been discontinued, and all are now paid a regular rate from the beginning. Women generally received somewhat less than men.[13] In 1929 these rates had advanced until men were paid Rs. 13–2–3, women Rs. 10–6–3, and children Rs. 6–10–10.[14] Travelling expenses are also provided and in many cases there are also valuable additions of housing and land for both cultivation and pasture.

Mining wages have also been distantly related to those in the factory. As on the tea estates, they have been low, varying only slightly from the wages of the "coolies" or unskilled workers. Daily wages in two mica mines in 1891 were reported by the manager as follows: [15]

	The Sapohi Mine	The Singar Mine
Blasters (male)	3 to 5 *annas* *	11 to 13 *pice*
Ordinary (male)	2 *annas*	8 *pice*
Women †	6 *pice*	6 *pice*
Children	3 to 5 *pice*	4 to 5 *pice*

* One anna then equalled approximately two cents.

† Women sat, one above the other, on the rounds of ladders which reached from the bottom to the top of the mine and passed baskets of mica over their heads and up the line to the top.

[13] See *Prices and Wages in India*, 36th Issue, p. 222.

[14] *The Indian Trade Journal*, Feb. 5, 1931, *Supplement*.

[15] *Parl. Papers*, Sess. 1893, Paper No. 150, pp. 34–5.

A colliery employed 4,920 hands,[16] about half of whom worked underground. Fifty-five per cent were men, thirty-five per cent women and ten per cent children. The average wages per week were for underground workers Rs. 1–1–0 (38¼ cents), and for surface workers 0–14–6 (32½ cents). For an underground worker this was equivalent to about $1.65 per month. While considerably less than wages in jute-mills, or even than wages on tea plantations, this sum is not disproportionate to the wages just quoted for mica mines. Yet it is low when compared to the wages of factory workers such as those in the government harness factory where the lowest class labor was being paid Rs. 6 to Rs. 7 per month. Towards the turn of the century mining wages improved. Datta's figures show that in the period 1890–1912 they rose proportionately more than any other wages except those in lock-making work-shops.[17]

INCREASE IN MINING WAGES. (INDEX NUMBERS)

1890–94	1895	1900	1905	1910	1912
100	106	133	158	186	189

But there must have been many exceptions to this striking advance. A colliery in the Raniganj field of Bengal, the principal coal mining district, paid five annas (about ten cents gold) per day from 1897 to 1899; and from then until the end of 1916, six annas, or twelve cents, per day.[18] This is an advance of only twenty per cent between 1899 and 1916, whereas Datta's figures show a fifty per cent advance between 1900 and 1912. After 1916 there was a sharp rise so that by 1921 the wage was twelve annas.[19] In 1926 the wages of miners in the same district were nine annas,[20] constituting a total advance of fifty per cent over pre-War rates. This increase was in accordance with the rates paid by mine-owners in Calcutta in 1925.[21]

Nevertheless miners' wages are still low when compared to those of mill workers. In 1925 they were earning much less than

[16] *Ibid.*, p. 30.
[17] Datta, *Enquiry into the Rise of Prices in India*, I, p. 170.
[18] *Prices and Wages in India*, 36th Issue, p. 212.
[19] *Ibid.*
[20] *Report of the Chief Inspector of Mines in India*, 1926, p. 4.
[21] *Report of the Royal Commission on Indian Currency and Finance*, 1926, Cmd. 2687, IV, pp. 410, 415. The Inspector's Report for 1927 shows a further sharp rise to 12¾ annas.

jute operatives and only half as much as men working in cotton. About eighty per cent of the total force employed in Indian coal fields are in the Raniganj and Jharria fields. In the Raniganj field in 1930 men's wages per month varied between twelve and sixteen rupees and women's between eight and twelve rupees.[22] Low as these wages are, they are high compared to those in the mica mines in Madras where women work for nine instead of eight hours per day for the equivalent of 6¾ cents.[23] On the other hand, in Burma, miners of some of the special products, such as tin and wolfram, were receiving Rs. 12 ($4.32) per week. This is explained by the use of Chinese miners, who are more energetic and efficient and have a higher standard of living.

Miners in India have come from a very low class and are accustomed to some of the lowest wages paid in the country. Even the great upheaval of the World War allowed them barely to hold their own against the rising cost of living. Their wages rose late and by a much smaller proportion than wages in most kinds of work. In recent years they have not been maintained but have slipped back.

This industry is perhaps further from standardization than any other in the country, making it extremely "difficult to trace the movements with any degree of accuracy." [24] Some witnesses claim that all wages were raised by thirty per cent in 1920 [25] but the Indian Mining Association reports [26] that this applied only to those earning up to 6½ annas per day or Rs. 12 (then $5.04) per month. Those earning Rs. 15 per month received an increase of 25 per cent and those drawing between Rs. 15 and Rs. 22.5 received an addition of 20 per cent, while persons whose incomes were over one rupee per day (36¢) were given only 10 per cent more. This, it will be noted, was the smallest advance made by any important industry. Several industries granted later advances after 1920 but "in many cases these have since been reduced." [27]

The development of the iron and steel industry is recent and therefore furnishes only a short series of wage statistics. The following table indicates the average wages paid to Indian workmen

[22] Royal Commission on Labour in India, 1931, *Evidence*, V, Pt. I, p. 35.
[23] *Report of the Chief Inspector of Mines in India*, 1926, p. 4.
[24] The Officiating Chief Inspector of Mines in India to Royal Commission on Labour in India, 1931, *Evidence*, IV, Pt. I, p. 230.
[25] *Ibid.*, p. 260.
[26] *Ibid.*, pp. 246–7.
[27] *Ibid.*

of all sorts in this industry between 1912, when the principal mill was started, and 1922.[28] The "covenanted" hands are the European and American executives and technicians, while the "uncovenanted" are Indians. The figures are averages for the given years for the different departments.

YEARLY AVERAGE WAGES IN THE TATA IRON AND STEEL MILL

	Covenanted Hands	Uncovenanted Hands (Indians)				
	Open Hearth Plant	Open Hearth Plant	28" Mill	Blooming Mill	Coke Ovens	Blast Furnaces
	Rupees	*Rupees*	*Rupees*	*Rupees*	*Rupees*	*Rupees*
1913–1914	4,484	242	185	415	207	339
1916–1917	11,212	250	383	518	200	207
1919–1920	13,126	205	381	393	235	215
1921–1922	13,527	240	401	595	255	272

These figures show an irregularity not easily accounted for. Not only the hands but the management was new and untried. On open hearth furnaces, wages were about the same in 1921–2 as in 1913–4, while on blast furnaces they were markedly lower. On coke ovens they had risen less than twenty-five per cent. This is probably owing to the high wages at the beginning (the plant had just been started); workers stayed on without receiving the wage advances given in other occupations. Also wages were at first paid at a higher level than competitive conditions warranted.[29] The coke ovens were first among the plants of the company to dispense entirely with Europeans, and labor conditions have been more stable in them as is shown by the more regular wage movement. The pre-War average was equivalent to $5.69 per month, while that for 1921–2 was, at normal exchange, equivalent to $7.55 per month. This was an advance for the period of thirty-three per cent and the wages were still very low for a steel mill. The wages, or salaries, given to European and American foremen—owing to their superior skill and managing ability—are very high in comparison, the average being equivalent to the wage of sixty-eight Indians. In 1927 these men were drawing on the average about one thousand rupees per month.

[28] Calculated from *Statements and Notes to the Indian Tariff Board* by the Tata Iron and Steel Co., Ltd., 1923, pp. 14, 15, 16.

[29] It is stated that, when this mill first started, some of the bonuses to European laborers on the blast furnaces were so liberal that they often exceeded the contract wage.

There has been considerable labor trouble in this plant and wages rose rapidly in 1928–9. Figures furnished by the company for the plant as a whole show an average rise of 27.7 per cent in annual wage between 1925–6 and 1929–30.[30] Other figures show a rise of 30 per cent between 1927 and 1929.[31] The average wage —apparently for Indian workers alone—in April 1929 was R. 42–3–0.[32]

Plants allied to the Tata Steel Works and located in the same neighborhood pay roughly similar wages. A large tin plate mill was paying, early in 1927, an average wage of Rs. 33 per month to Indians. Except for a small number of skilled laborers and a few administrators from over-seas, the plant is operated by Indians. Men working on the "hot-mill" were receiving about Rs. 44 per month. In 1929 the average wage had advanced to Rs. 35, or including the bonus, Rs. 37.8 per month.

Wages in engineering have risen more than in the lines already examined. Figures from a railway work-shop in Meerut, after registering a very slight fall during most of the period 1873–1904, rose steadily to about fifty per cent more in 1915 and then irregularly to indexes of 194 and 280 respectively for skilled and unskilled labor in 1922, the wages for 1873 being taken as 100.[33] It appears that this latter peak has been maintained.[34]

Lock-making is a hand trade which has shown marked growth in the regions where brass-working formerly flourished. Earnings advanced during the period 1890–1912, for which Datta gives the following index numbers: [35]

1890–94	1895	1900	1905	1910	1912
100	114	120	151	192	192

But it is in textiles that the chief growth in factory industry has occurred. Industrialists in the two cities have disputed whether Calcutta jute mill wages or Bombay cotton mill wages were higher.

[30] *Report of the Indian Tariff Board on Additional Protection for Galvanized Sheets,* 1930, p. 15.
[31] Royal Commission on Labour in India, 1931, *Evidence,* IV, Pt. I, p. 160.
[32] *Ibid.*
[33] *Prices and Wages in India,* 36th Issue, p. 213.
[34] Royal Commission on Labour in India, 1931, *Evidence,* V, Pt. I, pp. 385–91.
[35] *Enquiry into the Rise of Prices in India,* I, p. 170.

The matter is not easily determined, partly because of the secrecy preserved, especially in the jute mills. Wage secrets are a part of "the game." Even the Labour Intelligence Officer of Bengal, when writing of wages in this industry says,[36] that "real examples cannot be given. These rates are kept very secret by all managements."

Upon being questioned, in the course of a government inquiry in 1892, the secretary of the Jute Mills Association was characteristically non-committal in his statement that rates ranged "from one rupee per week for children working half-time at the simplest kind of work to rupees ten or twelve per week for a skilled mechanic.[37] To the wage query "their amount and fluctuation," one firm operating jute mills gave the laconic reply, "Nil" and to make doubly certain of safety this evidence was signed in such a way that the Commission could only record, "Signature illegible." [38]

The British-Indian Association, the tenants of whose members were often engaged in jute manufacturing, stated that unskilled workers earned from Rs.0–14–6 to Rs. 3–0–0 per week, while skilled workers received from Rs. 5 to Rs. 7 per week.[39]

The Indian manager of a Calcutta cotton mill guilelessly blurted out that his average wages were "about Rs. 6 per hand" [40] ($2.00) per month. It is probable that this was a little lower than the average, and that the jute mills in the same town were paying somewhat more. A government investigator stated in the same year that a spinner could earn Rs. 10 and a coolie Rs. 7 per month in the Calcutta mills "with ease"; [41] but these were adult men, and a great many women and children were also employed.

The accompanying table shows weekly wages in a Calcutta jute mill between 1896 and 1927.[42]

It will be noted that, if coolies' wages are omitted, the lowest wages are paid to shifters, then carders, and above them spinners. Shifters are commonly children, carders are generally women, and spinners are young men, often between sixteen and twenty years of age. Weavers are mature skilled men who work hard for long hours and draw much the highest pay.

[36] Gilchrist, *Wages and Profit-Sharing*, p. 300 n.
[37] *Parl. Papers*, 1892, XXXVI, Pt. V, Cmd. 6795–XI, p. 142.
[38] *Ibid.*, p. 145.
[39] *Ibid.*, p. 146.
[40] *Ibid.*, p. 145.
[41] Skrine, *Memorandum on the Material Condition of the Lower Orders in Bengal*, p. 32.
[42] *Prices and Wages in India*, 36th Issue, p. 223.

AVERAGE WAGES (IN RS.) IN A JUTE MILL IN BENGAL

IN JANUARY OF	PER WEEK							PER DAY	
	Carding	Rovers	Spinners	Shifters	Winders	Beamers	Weavers	Mistries	Coolies
1896	1.37	2.19	2.5	.87	2.5	2.75	4.75	.81	.3
1897	1.41	2.19	2.75	.87	2.5	2.75	5	.81	.31
1898	1.41	2.19	2.75	.87	2.75	2.75	5	.81	.31
1899	1.41	2.19	2.75	1	2.75	2.75	5	.87	.31
1900	1.44	2.25	3	1	3	3	5.25	.87	.31
1901	1.44	2.25	3	1	3	3	5.25	.87	.31
1902	1.44	2.25	3	1	3	3 25	5.25	.87	.31
1903	1.44	2.37	3	1	3	3.25	5.25	.87	.31
1904	1.47	2.37	3.25	1.12	3.25	3.25	5.37	.94	.34
1905	1.47	2.37	3.25	1.12	3.25	3.5	5.37	.94	.34
1906	1.47	2.5	3.25	1.12	3.25	3.5	5.37	.94	.34
1907	1.47	2.5	3.25	1.12	3.25	3.5	5.37	.94	.34
1908	1.5	2.75	3.5	1.25	3.5	3.75	5.5	1	.37
1909	1.5	2.75	3.5	1.25	3.5	3.75	5.5	1	.37
1910	1.5	2.75	3.5	1.25	3.5	3.75	5.5	1	.37
1911	1.5	2.93	3.35	1.35	3.5	4.1	5.75	1.12	.37
1912	1.5	2.75	3.2	1.23	3.2	3.42	5.65	1	.43
1913	2	3.35	3.44	1.75	3.45	4.64	5.6	1	.43
1914	2	3.3	3.45	1.76	3.6	4.7	5.65	1.1	.42
1915	2	3.32	3.48	1.8	3.6	4.72	5.6	1.1	.44
1916	2	3.3	3.5	1.75	3.6	4.7	5.65	1	.44
1917	1.94	3.8	3.35	1.56	3.65	4.8	6.14	1	.45
1918	2	3.9	3.37	1.5	4.35	4.85	5.85	1	.45
1919	2.18	4.25	3.75	1.65	4.55	5.49	6.75	1.09	.47
1920	2.75	5.4	4.33	2	5.88	7.29	8.75	1.32	.61
1921	2.9	5.75	5	2.2	6.3	7.6	9.2	1.4	.65
1927 *	2.878	4.375	4.5	2.19	5.1	6.5	7.5	1.25	.80

* Wages paid in another Calcutta Mill.

These wages show an average increase of nearly fifty per cent between 1896 and 1914, approximately the gain which we have found for industrial wages as a whole, and corresponding closely to the findings of Datta. The following are his index numbers for jute wages to 1912, the average wage for 1890–4 being taken as 100.[43]

1890–94	1895	1900	1905	1910	1912	1913 *
100	107	122	131	139	143	146.5

* Van Delden.

Van Delden gives figures[44] for 1913 which make the index num-

[43] Datta, *Enquiry into the Rise of Prices in India*, I, p. 178.
[44] *Studien Über die Indische Juteindustrie*, p. 116.

ber for 1913 equal 146.5. We may take this as indicating the approximate advance from 1890–4 to the beginning of the War.

For the War and post-War periods no elaborate inquiries have been made. But figures obtained after considerable inquiry by some members of the Royal Commission on Indian Currency and Finance show that in 1925 jute mill wages had advanced fifty per cent over the 1914 level.[45] One of the large jute manufacturing companies

JUTE MILL WAGES, 1929
(60 Hour Week)

DEPARTMENT		AVERAGE WAGES		
		Rs.	As.	Ps.
Batching:	Head sirdar	12	15	3
	Other sirdars	7	2	9
	Other workers	4	5	3
Sacking preparing:	Head sirdar	13	12	9
	Other sirdars	9	13	6
	Other workers	3	12	6
Hessian Preparing:	Head sirdar	13	12	9
	Other sirdars	9	13	6
	Other workers	3	12	6
Sacking Spinning:	Head sirdar	14	6	0
	Other sirdars	10	6	0
	Other workers	4	2	0
Hessian Spinning:	Head sirdar	14	6	0
	Other sirdars	10	6	0
	Other workers	4	2	0
Sacking Winding:	Head sirdar warp	9	11	0
	Head sirdar cop	10	8	0
	Head sirdar beaming	13	4	0
	Other sirdars	10	0	0
	Other workers	5	12	0
Hessian Winding:	Head sirdar warp	9	11	0
	Head sirdar cop	10	8	0
	Head sirdar beaming	13	4	0
	Other sirdars	10	0	0
	Other workers	5	12	0
Sacking Weaving:	Head sirdar	24	8	0
	Other sirdars	13	4	0
	Other workers	9	8	0
Hessian Weaving:	Head sirdar	24	8	0
	Other sirdars	13	4	0
	Other workers	8	4	6
Calendering:	Head sirdar	11	2	0
	Other sirdars	8	6	0
	Other workers	5	0	0
Machine Sewing:	Head sirdar	12	0	0
	Other sirdars	8	8	0
	Other workers	5	0	0
Hand Sewing:	Head sirdar	9	8	0
	Other sirdars	7	8	0
	Other weavers	3	8	0
Inspection Department:	Workers	3	8	0

[45] *Report*, Cmd. 2687, 1926, IV, p. 410, Nos. 8134 and 8144.

furnished figures which showed a rise of fifty per cent between 1913 and 1926.[46] Combining those two index numbers and accepting Van Delden's figure for 1913, we secure an index number of 220 in 1925 as compared to 100 in 1890–4. Five years later, in 1930, these wages were approximately the same except that a slight increase in hours had been accompanied by a corresponding increase in wages. The Angus Mill reported an average wage for 4,662 Indian operatives of Rs. 24–3–10 ($8.73) per month.[47]

Wages for a jute mill on the sixty hour shift in 1929 are given in the table on page 328. It is to be noted that nearly all come under the designation "workers." *Sirdars* are foreman.[48]

In 1877 the factory inspector stated that in Bombay Presidency cotton mills, the monthly wages averaged from ten to twenty rupees for men and from seven to nine rupees for women.[49] Other figures are provided by the materials collected by the Indian Factories Committee of 1890.[50] Wages were about as follows for Bombay:

Little Girl	Rs. 5 per month
Boy	Rs. 6 to 7 per month
Woman	Rs. 6 to 10 per month
Men (not weavers)	Rs. 10 to 12 per month
Men (weavers)	Rs. 12 to 15 per month

The most satisfactory information regarding early wages is contained in the answers to a British Royal Commission which extended its inquiries to the colonies.[51] This material, published in 1892, gives evidence of the continuing stability of wage rates. In Bombay an official[52] gave average monthly rates for men at Rs. 12, women at Rs. 9 and children at Rs. 5, and similar figures were given by others. Mr. J. N. Tata reported average wages of Rs. 11 per month for adults.[53] An Ahmedabad mill reported average wages of Rs. 10.[54]

Even in the nineties there were wide differences between Bombay and the up-country centers. Only Ahmedabad was to a small extent

[46] *Ibid.*, App., p. 631. All of the increase came between May, 1918, and October, 1920. One of the Commissioners used similar figures in his Minute of Dissent, *Ibid.*, I, p. 131.

[47] Royal Commission on Labour in India, 1931, *Evidence*, V, Pt. I, p. 408.

[48] *Ibid.*, p. 301. Evidence of the Indian Jute Mills Association.

[49] *Parl. Papers*, 1888, Cmd. 5328, p. 118.

[50] *Parl. Papers*, 1891, Paper, 86.

[51] *Parl. Papers*, 1892, XXXVI, Pt. V, Cmd. 6795–XI, pp. 105–174.

[52] *Ibid.*, p. 134.

[53] *Ibid.*, p. 121–2.

[54] *Ibid.*, p. 118. A cotton mill at Agra and another at Cawnpore reported average wages of Rs. 5–8–0, then equal to about $1.87 per month.

a competitor for labor against Bombay, while labor was plentiful and cheap in places like Cawnpore, Sholapur and Nagpur.

Numerous persons connected with the cotton industry stated that these wages had shown very little fluctuation for many years.[55] A few up-country employers stated that they had recently increased slightly. The inspector of factories said: [56]

> The most peculiar circumstance about the rates of wages is that there seems to have been no very sensible fluctuation for the last twenty-five or thirty years.

The tendency of wages to increase became more marked with the closing of the mints to silver coinage in 1893 and the second period, 1895–1914, saw a distinct advance, as we have already noted, in prices and in wages. Datta's enquiry,[57] using the average of the years 1890–4 as 100, shows the following advances for wages in the cotton industry.

1890–4	1895	1900	1905	1910	1912
100	102	112	121	134	141

While Bombay's wages were higher, they did not increase during this period as fast as did those in some other centers. Figures for Bombay were: [58]

1890–4	1895	1900	1905	1910	1912
100	103	107	108	121	124

Figures from another official publication show that some of these wages advanced very slightly between 1912 and 1914.

Though cotton mill wages advanced less rapidly than other wages and prices prior to 1914, they more than made up the difference during the War and post-War periods. Indeed, the higher wages in Bombay as compared with those in the up-country centers contributed largely to the recent Bombay depression. Wages at

[55] *Ibid.*, p. 150.
[56] *Ibid.*, p. 134.
[57] *Enquiry into the Rise of Prices in India*, I, p. 170.
[58] *Ibid.*, p. 178.

Ahmedabad do not differ much from those in Bombay, but Sholapur, Baroda state and other centers average only two-thirds as much. The attempt of Bombay employers to reduce wages by eleven per cent in 1925 only led to a disastrous strike. Finally the government was induced to remove the much hated countervailing duty of three and one-half per cent on cotton goods manufactured in Indian mills upon condition that wages be left untouched. Cotton mill wages will probably be reduced with difficulty. The accompanying table

AVERAGE MONTHLY EARNINGS PER HEAD IN COTTON MILLS *

PLACE	CLASSES OF LABOR	MAY 1914			MAY 1921			AUGUST 1923			JULY 1926		
		Rs.	As.	Ps.	Rs.	As.	Ps.	Rs.	As.	Ps.	Rs.	As.	Ps.
Bombay City	Men	18	6	8	34	15	2	35	10	7	37	10	2
	Women	10	0	10	17	6	6	17	5	5	17	12	4
	Big lads and Children †	9	6	7	18	0	10	17	14	0		——	
	All work-people†	16	6	3	30	10	0	30	10	1		——	
Ahmedabad	Men	15	7	1	34	2	11	33	0	9		——	
	Women	9	15	11	19	9	4	18	2	7		——	
	Big lads and Children †	7	2	3	18	6	6	17	3	11		——	
	All work-people†	13	9	9	30	2	11	29	7	0		——	
Sholapur	Men	14	3	11	25	13	0	22	3	10	23	15	6
	Women	5	13	11	10	15	9	8	9	7	9	15	7
	Big lads and Children †	6	9	6	14	12	0	12	7	11	5	10	4
	All work-people†	10	9	4	20	9	4	17	10	6		——	
Baroda State	Men	13	8	7	28	12	4	24	0	1		——	
	Women	6	13	4	16	6	11	14	14	11		——	
	Big lads and Children †	7	3	8	14	7	4	11	7	3		——	
	All work-people†	11	14	1	25	1	10	22	6	8		——	
Other Centers	Men	13	8	7	28	12	4	24	7	4		——	
	Women	6	13	4	16	6	11	11	14	7		——	
	Big lads and Children †	7	3	8	14	7	4	12	8	8		——	
	All work-people†	11	14	1	25	1	10	21	6	5		——	
Bombay Presidency	Men	17	0	8	33	6	10	33	1	10		——	
	Women	9	0	1	16	9	1	16	3	10		——	
	Big lads and Children †	7	13	4	17	3	7	16	9	6		——	
	All work-people†	14	11	11	28	14	4	28	9	1		——	

*An annual bonus during the five years, 1919–1923, amounting to 8 1/3 per cent of the wages in Bombay city, was discontinued in the latter year. This and a cut of about 15 per cent at Ahmedabad and a few smaller centers are the only significant changes from the figures here given since that time. Some wages were raised in Ahmedabad in the fall of 1929 and in 1930 when they became higher than in Bombay.

† Counting two half-timers as one full-timer.

shows rates in each center for various grades of work.[59] The rates for 1923 remained practically unchanged in 1929.[60]

The following table of index numbers gives a close approximation to the movement of wages, including bonus, in the Bombay cotton mills since 1870.

INDEX NUMBERS OF WAGES IN BOMBAY COTTON MILLS, INCLUDING BONUS FOR THE YEARS 1918–22 *

(1914 = 100)

YEAR	INDEX NUMBER	YEAR	INDEX NUMBER
1870	76	1917	110
1890–'94 (average)	80	1918	125
1895	82.4	1919	146
1900	85.6	1920	190
1905	86.4	1922	190
1910	102	1924	175
1912	99	1930	175
1914	100		

* The figures for the period 1890–1912 are based on Datta's Report and those from 1917 to 1923 on figures given by the Indian Tariff Board in its Cotton Textile Enquiry, 1927, I, pp. 109–10. The figures from 1920 differ slightly from those in the Bombay Labour Office Enquiry. Its figure is 187 instead of 190. The Bombay Millowners' Association claims a figure of 231 instead of 190, calculated by making allowance for the reduction of hours from 12 to 10 per day. Except for this their figure would be 192.5 as against 190 here, for 1922.

The main facts concerning the movement of Indian factory wages may be summarized as follows: From 1860 to 1895 wages were almost stationary with an advance of between five and ten per cent towards the end of the period. Between 1895 and 1914 there was a marked rise in wages, corresponding somewhat roughly to, though in some industries hardly keeping pace with, the rise in prices. This advance may be placed at about fifty per cent. Rural wages have exceeded this. From 1914 to the present, industrial wages have risen somewhat irregularly, both as to industries and as to periods. They lagged far behind prices until about 1918 when a series of rapid advances began, which in some industries ended by 1920 and in others continued until 1923. For most industries and most centers, especially for Bengal, this represented a further rise of fifty per cent for this period, the 1914 figure being taken as a new base. Especially in western India, and more particularly in the

[59] *Report on an Enquiry into the Wages and Hours of Labour in the Cotton Mill Industry*, Bombay Labour Office, 1923, p. 11. Figures for 1926 are from the *Report* by the same office for 1926, issued in 1930, p. 43.

[60] Royal Commission on Labour in India, 1931, *Evidence*, I, Pt. I, p. 412.

Bombay cotton mills, the rise was much more, reaching 96 per cent in 1921. Since then there has been some irregularity of employment but for India as a whole there have been no significant wage changes. Placing the cotton mills of Bombay in a separate category from 1918 to the depression, we may hazard a statement for the increase in industrial wages from 1860 to 1930 about as follows:

Year	Index Number	Year	Index Number
1860	62	1925	150
1895	67	1930	150
1914	100		

For Bombay Cotton Mills

Year	Index Number	Year	Index Number
1914	100	1925	175
1920	190	1930	175

Wage Additions. We next consider certain peculiarities of wage payments in the early stages of factory organization. One is the custom of calculating wages, not as a lump sum for a given task, but as composed of a basic wage and a number of additions which vary widely from center to center, from industry to industry, from factory to factory in the same industry and from task to task in the same factory. A standard rate exists for no industry in India. During the summer of 1928 this was one of the main issues in the Bombay cotton mill strike, but no improvement was made. A labor officer describes the situation in the following terms: [61]

> In a wage return one reads, "bonus, 20 per cent grain allowance"; "bonus of one anna in the rupee"; "plus 50 per cent cost of living bonus"; "war bonus 30 per cent."

A variety of influences appears to have brought this system into existence. Besides being characteristic of an early period of loose organization and lack of standardization it also indicates that the worker has required some extra stimulus and, possibly, some additional assistance in meeting the expenses for which he has not yet learned to provide. The worker has a "regular attendance bonus" which not only secures more time at work and relieves the employer

[61] Gilchrist, *Wages and Profit-Sharing*, p. 302.

of the deadly substitute system but trains the worker in steady habits and improves his skill. This would seem to be most necessary in the case of children but it is applied to adults as well. The amount is small, varying from an anna per week up to a rupee or more per month.

Another bonus is that on output. This is very common, especially where product can be credited directly to one person. This also varies in amount but for weavers in jute mills may run to twelve or more per cent of the total wage. This percentage has apparently been increased in recent years. Figures given in 1913 [62] showed a rate of two to four per cent to weavers who were earning around six rupees. A mill with the reputation of doing well by its hands was giving the following list of weekly bonuses for weaving similar goods in 1927.

Cuts:	8	9	10	11	12	13	14	15
Annas:	2½	4	6½	8½	10¾	13	15	18

The regular payment was Rs. 6–5–6 for fourteen cuts. To this would be added the fifteen anna bonus, nearly fifteen per cent. In an upper India cotton mill this bonus varied from 12½ to 18¾ per cent of the earnings.

In some industries, especially in the jute industry since the War, an allowance for food, *khoraki,* is paid and takes various forms. It may be called a "grain allowance" or a "subsistence bonus." In the jute industry it was originally given as subsistence to the worker on the idle days when the mills dropped from the six to the four day week during the post-War depression. This has now been consolidated with the regular wage, at least in many of the mills.

Another bonus aims at securing more loyal coöperation. For any breach of conduct this can be withdrawn, punishment less likely to cause resentment than a fine. Finally, dependent wholly upon the discretion of the employers, there is the annual bonus which was paid, especially in the cotton mills of Bombay, during the boom years. This amounted to about one month's wages and depended upon the profitableness of working. When it was removed at the coming of the lean years, a disastrous strike ensued.

Fines. Certain deductions from wages are also common, espe-

[62] W. A. Graham Clark, U.S. Bureau of Foreign and Domestic Commerce, Special Agents Series, No. 74, p. 165.

cially in the Bombay cotton mills. The policy of fining may become ruthless but something of the kind is necessary to force untrained and thoughtless laborers to attend to their tasks. The Indian worker is often dilatory in attendance and careless of the employer's machinery, raw materials and finished products. In a Bombay government enquiry it was found that "the system of making deductions from wages or payments in respect of fines is general in the textile industry in all parts of the Bombay Presidency." [63]

Three chief offences against factory discipline are punishable by fines: Improper observance of time; damage to materials, machinery or goods; and certain improper behavior.

To people accustomed to village agriculture or to handicraft industry, one of the most irksome features of the factory system is the necessity of observing time schedules. Even village merchants keep clocks and watches merely for decorative purposes and the ordinary workman scarcely knows what a time-piece is. If the Indian worker lives too far away to hear the steam whistle, or if it is indistinguishable from others, he or she may arrive after work has started. Fines for this may be fixed in amount or graded according to the degree of lateness.[64] In many cases where labor is fairly plentiful, the late-comer is not admitted after a certain number of minutes.

Workers also sometimes fail to come at all, without giving notice. Under the old conditions a fine of two days' wages—the "double khada" rule—was applied; that is, two days' wages were subtracted for one day's unexcused absence. This is still the common rule in Sholapur [65] and in many other places. Continued absence, often occurring because the worker has returned to his or her village, is punished by dismissal and, like certain other offenses, sometimes with forfeiture of all accrued wages.

It is also hard to keep the undisciplined laborer from injuring machinery or materials, or from in some way rendering the work of himself and others ineffective. A telephone company in Bombay

[63] *Report of an Enquiry into Deductions from Wages or Payments in Respect of Fines.* Bombay Labour Office, 1928, p. 86.

[64] In establishments under the Bombay Port Trust, fines for late attendance are as follows: (*Ibid.*, p. 74.)

Up to ¼ hour late, ⅛ day's pay
Up to ½ hour late, ¼ day's pay
Up to ¾ hour late, ⅜ day's pay
Up to 1 hour late, ½ day's pay

[65] *Ibid.*, p. 89.

has a set fine of one rupee, perhaps one day's work, for every wire left unsoldered. Yet it repeatedly finds cases of this negligence.

The most common example of fining for bad work is in the weaving departments of the textile mills where the weaver is required to purchase the cloth he has spoiled. There are degrees of liberality in the terms of purchase; sometimes he pays the actual cost to the company and sometimes the price which good cloth would have brought. The Bombay Fine Enquiry referred to above showed that this custom was followed in 58.3 per cent of the textile mills in the Presidency.

The Indian Tariff Board strongly condemned this practice on the ground that it caused irritation out of all proportion to the good it produced.[66] The total amount collected in fines is large but constitutes a small percentage of the total pay roll. In Bombay City sixty-six textile mills collected an amount equal to about one-fourth of one per cent of their wages bill.[67] In some places the percentage was slightly higher, but nowhere was it as much as one-half of one per cent of the total pay roll. In forty-six of Bombay Presidency's 206 textile mills there were 50,981 cases of fining, averaging Rs. 3–7–4 each. About 22,000 persons paid the total fines of Rs. 160,326, or about Rs. 7–3–0 each during ten months.[68] This is equal to less than two per cent of the probable wages of the workers fined. Proportionately a larger number of fines are imposed in Ahmedabad than in Bombay but the individual fine is smaller.

This system lends itself to abuse. I recall seeing a boy kicked soundly and fined Rs. 2 (perhaps three days' wages) for allowing a piece of cloth to go into a bundle folded rather than flat. Amounts so collected are commonly credited to "revenue" and labor leaders assert that the totals are so great as to be considered distinctly worth while by mill-owners and managers. Several of the more conscientious concerns apply money from fines to special purposes, such as a welfare fund for workers; and in recent years, there has been considerable agitation by labor in favor of this practice. Gradually the high-handedness of employers is abating.

Another deduction from wages which causes much dissatisfaction

[66] *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, I, p. 139.

[67] See *Report of an Enquiry into Deductions from Wages or Payments in Respect of Fines*, p. 90.

[68] *Ibid.*, p. 94. Also *Report on an Enquiry into Wages and Hours of Labour in the Cotton Mill Industry*, 1923, p. 28.

arises from the refusal of many mills to pay wages more than three months overdue. This amounts to a considerable sum. Identification is the chief difficulty. One of the men's demands in the big strike of 1928 was for back wages to be paid whenever called for; this was granted, subject to proper identification. Another practice is the confiscation of wages due in addition to summary dismissal for certain forbidden conduct such as smoking in specified places. Labor leaders are now attacking the practice, claiming that it is illegal to thus deprive a workman of his hire. Some companies, notably the Tata Iron and Steel Company, have discontinued the practice.

For weavers, the deductions from wages are serious, and for all laborers the confiscation of wages not called for within a given time, or which may be due when trouble arises with the employer, often constitutes a serious deduction from the regular money income.

Commissions. (Dasturi). There is still another kind of deduction which in some cases rises to a considerable percentage of the wage, although its amount is even more difficult to discover than that of fines. This is a payment prevalent in all oriental countries, and which was much more prominent in Europe when business was conducted on a smaller scale. In China it is called "squeeze," in America, a "kick-back," and in India *dasturi.*

The jobber (foreman) by whom the worker is employed and under whom he works often charges for the original appointment and also collects something from the periodical wages. Employers have opposed the practice but find it very hard to uproot. A recent government investigation, the results of which have been kept confidential, was made into the conditions of the recruitment of seamen. The Labor Intelligence Officer of Bengal who was closely associated with the inquiry, says in regard to it: [69]

Dasturi (commission) exists but cannot be proved. The lack of proof is not due to its non-existence, but to the unwillingness of individuals to disclose details. *Dasturi* is not only inherent in the wage system, but it is a sort of insurance premium. Cases have been known in which severe penalties have been laid down for persons receiving *dasturi;* the penalties too have been published broadcast so that all concerned should know. The result in every case is to drive *dasturi* further underground. Instead of

[69] Gilchrist, *Wages and Profit-Sharing,* pp. 328–330.

paying in the daylight, the worker goes to the recipient's house in the dark; or, if the house is suspected, he will meet him in the jungle. In *dasturi* there is always both a will and a way. . . . The evidence conclusively showed the existence of *dasturi* or bribery from one end of the recruitment system to the other, and the *dasturi* was on a scale such as would surprise every traveler by sea or consignor of goods.

Dasturi, it may finally be remarked, affects wage standards, as shown in wages returns, in a remarkable degree. It is well known by both employers and employees that certain posts have other emoluments besides the paper pay, and the paper pay is regulated accordingly. In some jobs no pay is necessary at all; the conventional pay is a mere bagatelle compared with the gross value of the job. But in these days of publicity it is well to show a paper wage, and pay it. Such publicity does not affect *dasturi*.

Just how high in the organization these bribes may rise, it is impossible to state. Certainly it is naïve to imagine them limited to the foremen alone, whether the higher officials be Indians or Europeans.

The coal mines have a particularly bad reputation for this practice. Scattered in different sections of a mine, the force is harder to control as a group than is the labor force in a factory. A good many contacts are literally "underground" and "in the dark," and the passage of cash is easy. It is said by persons of experience and wide acquaintance in the mining regions that this practice extends to the managing agency firms; that certain mine managers actually pay to the agency firms handsome salaries for the privilege of being managers and consequently the holders of the bags into which a share of all the collections finally come. Such men may even become partners in the managing agency firms. The trail of these commissions is beyond discovery, but where everyone below believes in the system, some at the top probably take advantage of it.

To know and prove the proportion of a worker's wages which goes in these commissions is impossible, but it would not be unreasonable to assume deductions on this score of one to ten per cent of the worker's wages. A woman jute mill operative earning Rs. 3 per week told the recent Royal Commission on Labour in India that when she first began she paid Rs. 4 as a bribe to the jobber and that she was compelled to pay that amount whenever she returned from a few weeks' absence, whether from sickness or because of making a visit to her home village. She also paid two annas from each week's wage. Her husband who earned Rs. 5½ per week was

compelled to pay Rs. 6 at the beginning and four annas per week.[70]

The rapacity and avarice of these jobbers has usually been thought uncontrollable, but recently the trade union movement has had some influence and seems destined to have more. This custom is in part merely a phase of early industrialization; but in the Orient it means something more. Where economic opportunity is so restricted, it seems as reasonable to buy a job as it is to buy a farm.

Time of Payment. Besides the actual amount of wages paid, the time at which it is received has much to do with the laborer's welfare, especially in a country like India where he lives close to the margin of subsistence at all times, and where proper facilities for borrowing are few. There has long been much complaint on this score. In 1892 the Bombay factory inspector wrote: [71]

> Under the head of Payment, the undersigned is reluctantly compelled to allude to the practice, happily not followed by all, of keeping the wages for over two months in arrears. In a special circular letter the Millowners Association enjoined upon the employers to pay the operatives before the fifteenth of the following month. . . . About half a dozen mills can be mentioned as now and again keeping back the wages for over two months.

The Bombay collector at that time (1892) considered this one of the three chief blemishes on the cotton mill industry there,[72] the others being bad housing and the floating residuum of mill hands. All mills in Bombay are supposed to pay by the fifteenth of the following month, but occasionally remittance is delayed. About 1925 the government instituted inquiries in the various provinces [73] and discovered great variety in time of payment. The report states: [74]

> In scarcely any industry is a single period adopted and in most districts periods vary with the industry. . . . Within the same establishment, different classes of workers are frequently paid on different periods. For example, in only 46 per cent of the factories in the United Provinces from which enquiries were made was the period of payment the same for all employees.

The most common practice is to pay wages monthly and to postpone pay day until the workman has roughly another half-

[70] *Evidence*, V, Pt. 2, p. 77.
[71] *Parl. Papers*, 1892, XXXVI, Pt. V, Cmd. 6795–XI, p. 135.
[72] *Ibid.*, p. 129.
[73] Bulletin of Indian Industries and Labour, No. 34.
[74] *Ibid.*, p. 1.

month's wages due him. In a few cases, wages are paid by the week or the fortnight. The jute mills of Bengal pay weekly, one week late, and the cotton mills of Ahmedabad pay their piece workers by the *hapta* which is from 14 to 16 days. The most important industry paying daily wages is coal mining.

There is no apparent reason why the longer period should prevail in some industries and the shorter in others. The cotton mills could as well pay every week as the jute mills. The main purpose of postponement is to keep some hold upon the worker. Labor men claim that employers also appreciate the interest on the funds for the extra time. In a country with a shortage of capital and high interest rates, this is perhaps true. The mill-owners often argue that it is impossible to get their accounts ready to pay earlier, but this is an unconvincing argument, especially so far as time workers are concerned.

This is another case of the lack of standardization in a newly industrialized country. Each individual factory still follows in this, as in the goods it produces, and in its selling methods, such practices as it originally started with. Sometimes, indeed, as in the small-scale industry of the craftsman, each concern takes pride in doing things, possibly only in some minor detail, differently from its neighbors.

However convenient it may be for factory owners to continue in the old ruts, it is undoubtedly a great disadvantage to workers to be compelled to wait so long for their wages. Indeed, the long period before the first pay day, usually about six weeks, and the long subsequent periods are responsible for a large proportion of the workers' debts. Once in debt, the ruinous rates of interest which prevail consume whatever little surplus the man can collect.

Labor leaders have been agitating for more frequent payments, and the government has made enquiries, but has never seen its way clear to legislate in the matter. The situation is surely not satisfactory, and offers an opportunity for the government to encourage intelligent standardization.

Debt. The economic status of Indian factory workers is inadequately described by a statement of their wages with additions and deductions. One of the chief features of the economy of these workers is the load of debt which they carry. Debt assumed great importance in India long before the factory system appeared; and even

now it is more prevalent in non-factory than in factory areas. It has taken a prominent place in the teachings of many oriental philosophers. The frequency of drouth and crop failure has meant great uncertainty of income for the rural people, and borrowing became a necessity. The recurrent famines have forced interest rates up because they have kept the supply of capital low, and have made the demand for loans peculiarly insistent.

The custom of going into debt has not been limited to any one group. Small cultivators have borrowed from large landowners or from merchant money-lenders to tide over the planting season, a lean year, or a series of years. Their borrowing is often in kind for food or seed and is repaid with liberal interest at harvest time. Village artisans and laborers borrow for subsistence or social expenses, especially for weddings and funerals, both of which are frequent and expensive in India.

A study made by the Bombay Labour Office in 1920–1 showed the following causes of debt.[75]

> The cause of the labourer's indebtedness is, in most cases, the occasional expenditure on marriage and funerals. Assuming the life-time of a generation to be 30 years in a family of five persons, there may be five such events as marriages and funerals during the period. The average cost of a marriage is, according to the Report, Rs. 214, excluding clothing bought on the occasion, and the cost of a funeral Rs. 35 for the first fortnight. The cost of five funerals and five marriages amounts to Rs. 1,245 for a generation or about Rs. 42 for a year. In addition to marriages and funerals there are also annual festivals (Rs. 11) and anniversaries (Rs. 7), the total occasional expenditure amounting to Rs. 60 per annum.

An independent and less formal investigation in Bombay a few years earlier showed the following reasons for mill-hand indebtedness.[76]

Marriage	20 per cent
Funerals	7 per cent
Occasional trips	28 per cent
Expenses at commencement of service	7 per cent
Medical help and family illness	14 per cent
Famines at native place	3 per cent

Since it is common for working men to have buried a second or third wife, and over half their numerous children, and since

[75] *Bombay Labour Gazette*, II, No. 9, p. 17.
[76] Indian Industrial Commission, *Evidence*, IV, p. 366.

marriages are so early, the above estimate may be regarded as moderate. The young head of a family soon has emergency expenses. He must arrange for the marriage of his daughters before they are grown, and in industrial circles it is the girl's father who meets the chief expense.[77] In spite of grinding poverty the social standards are exigent. A man must be able to furnish his daughters a decent marriage and his father a decent burial. Such, indeed, is the chief end of life. In a country in which economic opportunity is so limited that a woman cannot support herself, nor a man be found to take her unless he be given some sort of initial assistance, it is only by direct payments and by a display, which further guarantees the wedding as socially respectable, that desirable mates can be secured for daughters. Marriages, especially for the luckless father of many daughters, may keep a man in debt for his entire life-time; indeed the burden is often handed on to later generations. The cost of these special occasions is everywhere high but it varies according to the particular group and place, and is more in cities than in rural neighborhoods.

In 1909 an Indian witness stated that[78] "a clerk in his employ, earning Rs. 20 per month, on his betrothal borrowed Rs. 400 from outside and also asked witness to advance him another Rs. 400." Another factory owner states that in 1925 each of two of his clerks asked for advances of practically two years' salary to be used for the marriage of a daughter each.[79]

Funerals are less expensive than marriages, the service itself being simple, but the entertainment considered necessary as a concomitant is a heavy drain upon small resources.

The Indian worker is also often forced to borrow for the barest necessities. One of the most common debts is that for grain, the mainstay of his diet. The dealer is ready to make an extra profit of an anna per rupee by allowing the bill to run for a month which, like buying on the instalment plan, is a great accommodation but amounts to paying ruinous interest.

[77] In agricultural regions, where wives more than pay their way, it is generally a "bride-price" rather than a "groom-price" which must be paid. But a case is known where one farmer owning ten acres spent on the marriages of a son and a daughter in two succeeding years a sum equal to seventeen years' rental of his holding.

[78] *Parl. Papers*, 1909, Cmd. 4519, p. 66. *Evidence* of Mr. (now the Hon.) Manmohandas Ramji.

[79] "Groom prices" differ according to the education and prospects of the boy. One who has passed matriculation has one value, an Associate in Arts has another, an A.B. "plucked," a higher, and a real A.B. brings something like a fancy price.

Among Hindus a debt is inherited for three generations and unless paid off by his descendants is a permanent blot on the soul record of the original debtor. The commentator Narada is quoted as saying: [80]

> Where a devotee or a man who maintained a sacrificial fire dies without having discharged his debt the whole merit of his devotions or of his perpetual fire belongs to his creditors.

In the handicraft system indebtedness has played an important part. Besides affording the worker a relief from destitution, it makes a personal tie between himself and his employer. A similar relationship was not uncommon in Europe. In the thirteenth and fourteenth centuries, for example, it played a large part in the Florentine woolen manufacture [81] and later in the silk industry of Lyons. Even at the end of the eighteenth century Scottish mine-owners bound their laborers by debt and "workers could leave an employer only when they could find another who would repay their debts for them. . . . In practice debt slavery replaced legal slavery." [82]

This debt relationship, for which very definite rules of conduct were developed and incorporated in religious principles, was of advantage to both master and workman. Periods of depression are frequent and long in Indian industries, and for a man without a tie they are exceedingly dangerous. The oriental village economy guarded against beggary and degradation, by the family and caste systems; but the urban craftsman without capital was less fortunate. He was necessarily dependent upon a capitalist for financing and marketing. In times of stress, such as a famine, an indebted employee may be as well worth saving as is a slave. This was a dearly bought salvation but such it often proved to be.[83] On the other hand, one of the chief difficulties of the putting-out manufacturer is the provision of a steady supply of skilled labor. By accommodating his men with loans he was assured of labor whenever he required

[80] Quoted by A. E. Mirams, Indian Industrial Commission, 1918, *Evidence,* IV, p. 367.

[81] See Alfred Doren, *Die Florentiner Wirtschaftsgeschichte,* I, p. 227.

[82] T. S. Ashton, *Economic Journal,* Economic History Series, No. 3, January, 1928, p. 310.

[83] One student called debt "the outcome of a rude system of insurance against famine." Skrine, *Memorandum on the Material Conditions of the Lower Orders in Bengal,* p. 8.

it and yet was not compelled to pay wages continuously. The worker obtained security yet was technically free.

The debt system remains intact in the handicrafts where it is all but universal. It also has great vogue in factory circles but here it provides security for neither employer nor workman. Factory workers have the disadvantages of debt without its advantages. Their obligations are usually to merchants and money-lenders rather than to employers. "The grain-seller and *Marwari* are seen outside the mill gates on pay day," [84] and gatemen are bribed to allow them inside, where payment is more difficult to avoid.

Sometimes the money-lender is the "jobber" within the factory from whom the worker secures an appointment. He receives a better wage than the ordinary laborer, and has in addition his commissions from workers under him. He is in a position to lend and to collect both interest and principal from the workers' wages. Being a superior, he has an added power over his inferiors. Again the lender may be a clerk in the mill or a guard, who is quite an important personage, probably a member of one of the military races, like the Gurkhas, or the Sikhs. Often he is an ex-service man and always dressed to look like a soldier, thus putting fear into the hearts of ordinary mortals. Sometimes an unprincipled man gets the position and practically forces the borrower to retain the loan and make the weekly or monthly payments for interest. If the borrower refuses, this guardian of law, order and property can quite readily bring some charge against him which jeopardizes his position; and the big club which he is allowed to carry is always in the back-ground. Again, the lender may be a fearsome Pathan from the Northwest frontier, thousands of whom come over into India every year and make a good income by lending small sums at interest. It is said that they always carry prepared notes in their pockets and that a man may secure a loan on a minute's notice. They also know how to collect. Even Tommy Atkins has learned to respect the Pathan. These gentry dress in garments colorful even for India, and go in groups of two or three. Their walking sticks are literally clubs and are used effectively in the persuasion of defaulting debtors. There are still others who specialize in this business of lending. The *Marwaris* have a great reputation, though they commonly combine money-lending with trading. Coming from

[84] *Parl. Papers*, 1909, Cmd. 4519, p. 126.

the little district of Marwar in Rajputana, which in 1921 had less than 2 million population, they have scattered over the whole country and are among the wealthiest people in every community. They have not only captured much of the bazar trade and banking of Calcutta, but have obtained control of the greater part of the village business. Everywhere they deal in whatever goods offer prospects of profit. Grain and cloth are the most attractive lines, staples for the factory hands, and always, in connection with their dealing, they sell on time and lend money outright.[85] The story of one of these men operating in a village is given as follows: [86]

The total amount of indebtedness of the 147 families in the village in 1917 was Rs. 29,384. Of this Rs. 15,739 [53.7% of the total] was on land security, Rs. 11,495 on personal security, and Rs. 2,150 on the security of their houses. The rates of interest vary from 12 to 75 per cent, but a majority of the loans bear interest at 20 per cent per annum. . . .

Most of the debts in the village, and especially the debts for which these mortgages were given, were obtained from the Marwari money-lender and shopkeeper in the village. This man was brought up in the village as a young man. He had no land but he was in debt after his father's death. He accompanied as a young man a number of the villagers to Bombay where they went for work, thirty-five or forty years ago. While in Bombay, he worked as a confectioner, preparing sweetmeats and selling them to the laboring classes. After four or five years, he returned to the village of Jategaon with a sum of about Rs. 500, and settled down as a money-lender and shopkeeper, selling grain and other commodities. Now, after thirty-five years, he is master of nearly 172 acres of land in this village and of 41 acres in Shikrapur, and has money out on loan to the extent of over Rs. 50,000. This is an illustration of how a man can make a moderate fortune in the poorest Deccan villages by money-lending and its associated transactions.[87]

The extensive evidence taken by all the commissions which have investigated labor conditions in the country has contained much about debt. A representative of the Sassoon mill stated in 1908 that the workers were [88] "badly off, many being in debt, and in the hands of the *Marwaris*." Sir Bezonji Mehta of Nagpur

[85] Some of these men, and the young boys who begin early to take part in the business, are no less than marvels in the calculation of the proceeds of accounts at compound interest over irregular lengths of time. School inspectors admit that small boys are often much more proficient in this complicated business than they themselves.

[86] Mann, *Land and Labor in a Deccan Village*, II, pp. 117–8.

[87] A note is added stating that a flood carried the old man away before the book went to press; but his claims were surely inherited by someone.

[88] *Parl. Papers*, 1909, Cmd. 4519, p. 134.

stated: [89] "Mostly they are in debt or live from hand to mouth."

In 1918 a government official who had acquired an unusual amount of information about the labor situation stated to the Industrial Commission that his studies (which appear to have been mainly concerned with married men accompanied by their families) showed [90] "that 80 per cent of the employees in Bombay are in debt and that the average debt per head is Rs. 111.37." A survey by the Bombay Labour Office showed that "the indebtedness of the family in debt extends ordinarily to the equivalent of two and a half month's earnings. The extremes were equivalent to 14 months' and one third of a month's earnings." An Indian Christian clergyman among the "depressed" classes—menials and lower castes—in the Punjab states that the families in his congregation owe on an average about Rs. 200.

The amounts owed are relatively large, and the interest rates are often ruinous, as the Industrial Commission's witness goes on to say.

> The usual practice of the *Marwari* is to recover the interest in advance. . . . An employee on an average has to pay Rs. 7 by way of monthly interest. . . . The *Marwari* does not lend a large amount to one man. . . . He is besides very keen about his interest. He will let an employee keep the loan but will have his interest regularly. In this way the *Marwari* receives as interest alone Rs. 150 in two years. . . . He has thus recouped his capital and made a handsome profit of 25 per cent (per annum).

The same statement added that

> eight per cent of the employees pay interest at annas 2 in the rupee per month, that is at 150 per cent. Fifty per cent of the employees (or 62.5 per cent of those having debts) pay interest at one anna in the rupee per month, that is at 75 per cent.

The Bombay Labour Office study of 1923 showed equally high rates.[91]

> Interest on debts showed an average expenditure of nearly 3 per cent of the total monthly expenditure. No less than 47 per cent of the families were in debt. . . . The usual rate of interest is one anna per rupee per mensem or 75 per cent per annum, and in a few cases 2 annas per rupee per mensem or 150 per cent per annum.

[89] *Ibid.*, p. 367.
[90] Indian Industrial Commission, 1918, *Evidence*, IV, p. 366.
[91] *Report on an Enquiry into Working-Class Budgets in Bombay*, Bombay Government Press, 1923, p. 33.

The interest is not often paid monthly and the worker frequently does not know what his interest charges are. Some money lenders obtain in effect a higher rate than 150 per cent by taking promissory notes of higher value than the loan actually given.

A jute mill clerk (babu) tells of a case in which a worker owed 16 rupees and paid one rupee per week to the lender during six or eight years. Other persons in the jute mill regions insist that the interest there is frequently as high as 1 anna per rupee per week, that is at the rate of 6¼ per cent per week! Recent inquiries in Bombay Presidency give results typical of the entire country. Of one group in Bombay City eighty per cent of the families were in debt and of these forty per cent paid 150 per cent interest. Three cases showed interest at 225 and three others at 300 per cent per annum.[92]

Taking notes for more than the actual loan is a common practice and generally the borrower has no definite idea as to what rate of interest he is to pay. He puts his thumb print on the paper but can read neither the amount of the principal nor the interest rate. Even if he could read he would borrow on whatever terms because he feels his need so keenly and his bargaining position is so poor. Frequent disagreements arise over the amounts which have already been paid. Besides the papers, the lender often holds (literally) the "big stick" and, unless the worker actually flees the neighborhood, is likely to use it.

Real Wages. The prevailing opinion in India, especially among non-Indians, is that there have been decided improvements in real wages since factories were established. On the other hand, there are many, especially among Indians, who maintain that the worker has lost. We shall discuss real wages as we discussed money wages, in three periods, 1860–90, 1890–1914, and 1914–30.

There are comparatively few data regarding the early period but it appears that real wages advanced slightly. We have seen that money wages stood fairly constant from 1860 to 1890, with a few short recessions offset by other advances, more especially near the close of the period.

As for the claim that conditions grew worse, the Currency Commission of 1893 stated that prices had advanced, especially in the

[92] Royal Commission on Labour in India, 1931, *Evidence*, I, Pt. I, p. 97.

later years, and that they had seemed to outrun the rise in wages.[93] Some of the leading witnesses before that Commission were of the same opinion. An employer of large numbers of various types of laborers told the Commission that prices had been rising so rapidly in the years just preceding 1893 as to make living conditions much worse. A partner in the great firm of MacKinnon, MacKenzie and Co. stated that there had [94]

> been a serious rise in retail prices in India . . . and . . . no corresponding increase in wages. . . . There is no doubt that retail prices of food grains have gone up very seriously, and the struggle for life is extremely severe in India.

The Bombay collector took the opposite view, insisting in 1892 that while wages remained constant, prices had all become lower.[95] He also mentioned certain "luxuries" like soda-water, tea and ice, as having become common, which, though insignificant to the comfortable classes today, must then have meant much to the workers of India. On one score only did this officer grant that the Bombay worker was worse off, and that was as to housing, owing to the great increase in the number of factory workers in the city. His conclusion was that the worker's condition had very much improved.

Another good Bombay witness, the factory inspector, disagreed with the collector. He said: [96]

> Bearing in mind that the education and moral condition of the employee has in no way made any material progress, whereas the purchasing power of money during the period has steadily and considerably decreased, the condition of the mill operatives in respect of happiness and of some degree of opulence and comfort seems evidently to have been more retrograde than progressive. . . . Is it possible to conceive that they (the workers) could be in a thriving condition when the average wages are about twice the amount necessary for the bare sustenance and clothing of one person?

He quoted a Price Commission to the effect that Rs. 6 per month was required to provide bare subsistence and clothing for one person, and claimed that wages were only Rs. 12 for adult men. An investi-

[93] *Report. Parl. Papers*, 1893, Cmd. 7060, Par. 31.
[94] The Hon. James L. MacKay, *Ibid.*, II, p. 44.
[95] *Parl. Papers*, 1892, XXXVI, Pt. V, Cmd. 6795–XI, pp. 128–9.
[96] *Ibid.*, pp. 134–5.

gator in Bengal reached the more optimistic conclusion for the rural working classes as a whole. He said: [97]

> But the peasant, the artisan and the labourer throughout the country . . . are infinitely better off than their predecessors of a generation back. Evidence of this fact meets the eye on every side in the shape of better houses, food and dress, a more liberal expenditure on ornaments, brass eating vessels and luxuries.

These arguments are interesting as showing how difficult it was for persons close to the workers to decide whether they were better or worse off. Even the figures available do not give a definite answer; they indicate fluctuations but a fairly steady average. Yet it is doubtful whether wages rose enough to offset the slightly higher cost of living. The prices of grain, the most important item in the worker's expense, are shown in the following table. Smaller numbers, of course, mean higher prices.[98]

PRICES * OF FOOD GRAINS IN INDIA †
(Seers‡ per rupee)

YEARLY AVERAGE	WHEAT	RICE	JOWAR	BARLEY	BAJRA	AVERAGE OF FIVE CEREALS
1861–1865	21.36	21.66	25.78	35.60	24.27	25.73
1866–1870	15.45	17.42	21.25	25.81	19.90	19.97
1871–1875	19.46	19.14	25.30	28.54	22.38	22.96
1876–1880	16.35	15.30	20.42	26.94	18.91	19.58
1881–1885	19.98	18.21	27.64	30.48	24.22	24.11
1886–1890	16.05	15.41	21.17	24.25	19.49	19.28

* Prices in the industrial centers, like Bombay and Calcutta, ruled higher than in the rural districts (given in this table), although they appear to have moved together.

† The districts from which the prices are arranged are, in number, as follows: for wheat, 99; for rice, 90; for jowar, 95; for barley, 54; for bajra, 86.

‡ One seer equals approximately two pounds.

The principal expenses of a mill hand are for food, housing and clothing. There are no figures for rent charges, but it appears that they rose appreciably in Bombay. In other centers this was not a serious matter. There was a large influx of factory hands into Bombay, the numbers employed in cotton mills alone increasing

[97] Skrine, *Memorandum on the Material Condition of the Lower Orders in Bengal*, p. 8.

[98] *Report of the Committee Appointed to Inquire into the Indian Currency*, 1893, App. II. *Parl Papers*, 1893, LXV, Cmd. 7060–II, p. 272.

nearly ten fold between 1865 and 1890.[99] It was estimated that there was, in addition, as we have already noted, a "floating residuum" of 25,000 jobless hands in that city in 1892.[100] The result of this crowding was "evil, a grimy squalor unknown in Bombay fore-factory days." "The workers crowd to save rent," wrote the Bombay collector.

While the Indian workman wears little clothing, he and his family must have a certain amount of cotton cloth. During this entire period, yarn and cloth were appreciably cheaper than they had been earlier.[101]

On the whole, while wages and prices rose slightly between 1860 and 1890, there appears to have been very little change in the real incomes of Indian factory hands. On account of high rentals and higher food prices Bombay hands certainly suffered, but the evidence does not show that factory hands as a whole became either worse or better off during the period.

The next period, 1890–1914, was one of change. Prices rose markedly and wages followed, though with a lag. Datta decided that in nearly all cases the real incomes of wage-earners increased. Only in brewing, tea manufacture and sugar making were real wages lower in 1912 than in 1890–5; while in eleven industries they averaged seven per cent higher. Unskilled urban workers enjoyed the greatest advance, 45 per cent, and the average rise for all kinds of economic activity, according to this investigator, was 21 per cent. The only decided advances were outside the main factory industries such as in lock workshops (42 per cent increase) and in mining (37 per cent). Cotton and jute manufacturing showed small gains (6 per cent).

Mr. Datta was a high official of the finance department and his studies show the results of a wide survey which with a large staff he carried out during a three year period. His figures are the most elaborate that have been published for any similar period in India. But when compared with other evidences available, Datta's figures seem to show too great an improvement. His estimate of a 38 per cent increase in the real earnings of rural workers seems

[99] *Statement of the Bombay Mill-owners Association to the Indian Tariff Board,* 1926, p. 60.

[100] *Parl. Papers,* 1892, XXXVI, Pt. V, Cmd. 6795–XI, p. 129.

[101] Taking the price for 1873 as 100 the index ranged downward to 1910. At one time it was 62.

optimistic in face of the estimated 19,000,000 deaths from starvation between 1891 and 1901.[102] His statement that cotton mill hands in Calcutta had gained over 50 per cent more than cotton mill hands in Bombay appears abnormal even for a new and irregularly developing economy such as India's. The following table is inserted directly from that study.

Two criticisms suggest themselves: first that sufficient data for

REAL WAGES *

(1890–1895 = 100)

CLASSES OF LABOR	AVERAGE FOR YEAR			YEAR	YEAR
	1895 to 1899	1900 to 1904	1905 to 1909	1910	1912
Rural					
Agricultural laborers	103	120	123	134	138
Village artisans	105	122	124	135	138
Average	104	121	123	135	138
Urban					
Skilled laborers	104	119	120	132	134
Unskilled laborers	106	122	126	135	145
Domestic servants	100	111	108	117	116
Average	103	118	119	131	133
Cities					
Skilled laborers	105	118	120	131	130
Unskilled laborers	104	117	120	131	132
Domestic servants	102	113	111	118	116
Average	105	117	118	129	128
Industries					
Jute	105	113	105	109	106
Cotton	101	106	100	106	106
Wool	97	111	101	113	109
Leather	102	117	99	110	106
Brewing	95	100	91	98	94
Tea	101	96	90	98	95
Sugar	103	109	100	102	97
Paper	96	102	94	109	102
Lock workshops	106	128	120	154	142
Printing press	92	105	98	117	108
Mining	105	129	128	148	137
Average	100	107	103	111	107
Railways	97	99	97	108	101
Canals	98	102	94	108	102
Average of industries	99	106	100	110	106
General average	102	113	112	123	121

* *Enquiry into the Rise of Prices in India*, by K. L. Datta, M.A., I, pp. 169–170.

[102] Digby, *Prosperous British India*, Ch. IV.

the establishment of wage tables did not exist; and second, that the work was biased by a perhaps unconscious effort to show the improvement which his employers were probably anxious to show.[103] The study was begun in 1910, at the behest of the government and received its blessing upon completion.

The greatest changes of all came in the last period, 1914–30. Fluctuations in both wages and prices have been great and in many lines of work there have been definite gains. Wages lagged behind prices in the earlier years, then rose to meet them, generally after the peak was passed, and remained high while the cost of living declined. In 1926, one of the Royal Commissioners on Indian Currency and Finance stated that in their elaborate inquiries no province reported a falling tendency of industrial wages.[104]

In a few industries, notably in Bombay cotton manufacturing, wages rose considerably more than the cost of living; and even during recent years, when prices have declined so markedly, wages have been maintained. Labor has become sufficiently awakened to make wage reductions extremely difficult, but since industry is still deeply depressed, it is not unlikely that wages may be lowered somewhat before long. Until the depression, the wage-level in the post-War period was higher only in about the same degree that prices were higher. The following table shows the index numbers for

INDEX NUMBERS OF COST OF LIVING IN BOMBAY*

(July, 1914 = 100)

July, 1914	100	July, 1924	157
July, 1915	104	July, 1925	157
July, 1916	108	July, 1926	157
July, 1917	118	July, 1927	156
July, 1918	149	July, 1928	147
July, 1919	186	July, 1929	148
July, 1920	190	July, 1930	139
July, 1921	177	July, 1931	108
July, 1922	165	July, 1932	109
July, 1923	153	July, 1933	103

* *Bombay Labour Gazette,* June, 1932.

[103] Mr. Skrine tells in his Memorandum on the Material Conditions of the Lower Orders in Bengal, how that study originated. He says, p. 1, that "The Government of India . . . expressed a desire to possess more information on this topic than was available, in order that, when occasion arises, material may be provided for dealing effectually with the allegations that are frequently made as to the poverty and want of the lower classes, and which, however they may be in respect to limited tracts, are, it is believed, not generally applicable."

[104] Sir Purshotamdas Thakurdas. *Report of the Royal Commission on Indian Currency and Finance,* 1926, *Parl. Papers,* 1926, Cmd. 2687, p. 131.

cost of living in Bombay since 1914. Although this is for one city, its variations may be taken as fairly typical of those throughout the country.

We have seen that the index for industrial wages in general rose by about fifty per cent between 1914 and 1923 and that wages maintained a high level until the recent severe depression and its accompanying irregularity of employment. It will be noted that the index of the cost of living in Bombay (where wages also rose highest) was much above this from 1919 to 1922, and then fluctuated between 148 and 157, generally being in the upper numbers, from 1923 to 1929. With a few exceptions, it appears that real wages were lowered during the five-year period 1918–23 and that they did not quite reach their pre-War level until the fall of prices in 1928 or 1929. Since that time they have been rising rapidly.

Wages on tea plantations were late in rising during the War period but they have made a marked advance since 1920–1. The following table shows both the increase between 1913–4 and 1920–1 and the rise from the latter date to 1928.

WAGES ON TEA PLANTATIONS*

	ASSAM VALLEY									SURMA VALLEY					
	1913–14†			1920–21			1927–28			1920–21			1927–28		
	Rs.	As.	Ps.	Rs.	As.	Ps	Rs.	As.	Ps.	Rs	As.	Ps.	Rs	As.	Ps.
Men	6	1	3	9	8	5	13	2	1	7	10	0	10	4	7
Women . . .	4	11	5	8	1	0	11	6	11	6	1	7	8	6	4
Children . . .	2	13	7	5	0	10	7	0	6	3	13	7	5	4	0

* The government of Assam adds the statement that "the difference between 1920–1 and 1927–8 is greater than these figures indicate, for the 1920–1 figures include (an addition for) diet and subsistence allowances while the figures for 1927–8 represent cash earnings only. Assam Gov't to The Royal Commission on Labour in India, *Evidence,* VI, Pt. I, p. 19.

† In this column average wages for Non-Act coolies in all tea gardens in Assam, from *Prices & Wages in India,* 37th Issue, p. 222.

Other figures [105] show that average family incomes of tea-workers in the Assam Valley rose from Rs. 22–0–7 in 1923 to Rs. 25–14–0 in 1929 and in the Surma Valley from Rs. 16–4–0 to Rs. 25–14–0. This latter case shows a rise of over fifty per cent. For the

[105] Secretary of the Assam Branch of the Indian Tea Association in Royal Commission on Labour in India, 1931, *Evidence,* XI, Pt. II, p. 373.

various tea-growing districts, family earnings are claimed to have made advances of from 15 per cent to 103 per cent, the median increase being 26 per cent.

The coal miners' advance was much less than sufficient to match the rise in prices, especially during the period of highest prices. With advances which may be estimated at 25 per cent, though in some places the advance was as high as 55 per cent,[106] prices were sometimes 90 per cent higher and for eleven years the cost of living index averaged 63 per cent higher than it was in 1913.

In the iron and steel industry, as we have already seen, wages rose between 1925 and 1930 by nearly 28 per cent. With the continuous decline in the cost of living it appears that workers in this and associated industries have decidedly improved their condition. Fewer men have been employed, both because of less active trade and because the largest steel manufacturers have been making a systematic effort to reduce their labor force, but wages have steadily risen.

Wages in jute mills reacted more closely with the price level but they too failed to keep pace. Not until May, 1918, were rates increased at all and then by only 10 per cent, at which they stood until five months after the Armistice was signed. By October, 1920, the wage index, using 1913 as a base, reached 150 and has remained there. For many workers, weekly wages have since been reduced because the double-shift mills stood idle two days each week. To some extent this unemployment was offset by a grant of *khoraki,* supposed to cover subsistence. The wage rate was retained, however, and in connection with the general strike of 1929 was raised by 7½ to 10 per cent, but in return for an equivalent increase of hours. The following table compares the movement of jute wages with the movement of wholesale prices in Calcutta.[107]

It is apparent that the World War was by no means a blessing to the jute workers. For several years their real wages were reduced by one-third (if measured by wholesale prices) and not until nearly a decade after its close did they fully reach the pre-War level.

[106] Government of Bihar and Orissa, Royal Commission on Labour in India, 1931, *Evidence,* IV, Pt. I, p. 66.

[107] Constructed from figures given by the Indian Jute Mills Association, to Royal Commission on Labour in India, 1931, *Evidence,* V, Pt. I, p. 302. Similar figures for wages are given in *Report of the Royal Commission on Indian Currency and Finance,* 1926, Cmd. 2687, App. 99.

Date	Index Nos. of Wholesale Prices in Calcutta (Annual Average) (July 31, 1914 = 100)	Jute Mill Wages (1913 = 100)
End of July, 1914	100	100
Annual average 1915	112	100
1916	128	100
1917	145	100
1918	178	110
1919	196	120
1920	201	140
1921	178	150
1922	176	150
1923	172	150
1924	173	150
1925	159	150
1926	148	150
1927	148	150
1928	145	150
1929	141	155
1930	116	155
1931	96	155
1932 (Dec.)	88	—*

* Jute-mill wages have been lowered but I have been unable to find by what percentage.

With the sharp fall in prices in 1930, real incomes were proportionately improved though employment was reduced.

In Bombay Presidency both rural and urban labor made great gains in real income. In the rural areas even field wages rose earlier than prices, while others showed almost no lag until 1917. By 1921 all the wages in both rural and urban areas had risen more than the cost of living (for Bombay City) and remained in 1927 from 20 to 50 points above it. About 1925 the wages (1913 being taken as the base) of some groups were as much as 70 points above the cost of living in Bombay City (1914 being taken as the base). We have seen the great advance in cotton mill wages to an index level of 175 for Bombay Presidency. While the cost of living averaged around 155 from 1923 to 1929 and then dropped to as low as 108 in 1931, wages were not lowered. It appears that real wages of cotton mill operatives rose between 1914 and 1931 by 62 per cent, though this figure probably is too high.

Summary. Wages in Indian factories show numerous marks of the immaturity of the factory system. There is no standardization or uniformity in centers, industries, or in individual factories. Wages are often determined by calculations which differ for each concern

and often for different individuals and groups within a given concern.

There is a wide use of bonuses and fines aimed primarily to secure better work and better discipline. The worker often surreptiously pays considerable sums to his superiors as commissions on his wages, and his financial position is often badly damaged by a vicious system of borrowing—largely for marriages and funerals—from a variety of money-lenders who, partly because of the risk involved, charge ruinous rates of interest.

Industrialism in India has not yet made a great change in incomes. From 1870 to 1895 wages advanced only slightly, perhaps less than wholesale prices. From then until the outbreak of the World War they advanced somewhat faster than the general price level, so far as both movements may be determined. With the War-time boom, wages lagged for several years, then advanced sharply but unevenly, in some cases fully abreast of the high prices. Since the War there have been numerous wage disputes and while there have been some slight recessions, there have been some remarkable advances. Even during the recent depression, except for irregularity of employment, real wages have increased.

Per Capita Income. Numerous attempts have been made to ascertain the per capita income of the Indian population as a whole. While they are of course only more or less intelligent guesses, they give some indication of how the people live. One of the earliest was that by Mr. Dadabhai Naoroji, a Parsee who did much to arouse both Englishmen and Indians to the poverty prevailing in the country. His estimate, made in 1873,[108] was an annual per capita income of 20 rupees, then roughly equivalent to ten dollars.[109] In 1882 a government official made an estimate of 27 rupees, and an inquiry in Bengal—notoriously the richest province—in 1892 gave several examples of ordinary farm families which had incomes of between 20 and 30 rupees per capita.[110] In 1901 Lord Curzon gave out the figure of 30 rupees. In 1911 Mr. (now Principal) Findlay Shirras, was ready to raise this figure to 50 rupees.[111] All these figures were based on total production in the country, those of Lord Curzon and Findlay Shirras depending on calculations of total agricultural produce and the assumption that agriculturists produced as much in

[108] *Poverty and British Rule in India*, p. 1.
[109] *Ibid.*, p. 25.
[110] *Memorandum on the Material Condition of the Lower Orders in Bengal*, 1892.
[111] *Report on an Enquiry into Working-Class Budgets in Bombay*, p. 11 n.

proportion.[112] An elaborate inquiry in Bombay Presidency in 1921 by the Census Bureau resulted in an estimate of 75 rupees for rural districts and 100 rupees for urban.[113]

These figures must first be corrected for changes in the value of money. First the value of the rupee was lowered a little more than one-third between 1870 and 1900 by currency legislation. From a value of 48 cents it was reduced to approximately 32 cents. This leaves the gold value of Lord Curzon's estimate practically the same as Dadabhai Naoroji's, in 1873, namely $10. At the same time the price of food grains rose, for which so large a proportion of the common man's income is spent. The price of rice in Calcutta rose from a base of 100 in 1873 to 150 in 1900. On this basis the Curzon figure leaves the Indian in 1900 just about where he was in 1873.

Between 1900 and 1911 the gold value of money remained unchanged but there was a continued rise in prices. Rice in Calcutta rose by 33⅓ per cent though wheat fell. Mr. Findlay Shirras's figure depends upon a larger per capita production in agriculture and also upon a higher price per unit. Taking account of price changes it is about 25 per cent higher than Lord Curzon's figure. Finally, the figures suggested by the Bombay census were given at a time when the wholesale prices in Bombay were roughly double what they had been in 1911. Making allowance for the price change, this later estimate would leave a rate of 37½ rupees for rural areas and 50 rupees for urban. This would be equal to Findlay Shirras's calculation while the rural figure would be not far from Lord Curzon's estimate for the country as a whole. It seems indicated that, considering changes in the gold value of money and in prices and the meagreness of the basic data, these estimates, from Naoroji's down, have not been so very wide apart.

Yet, on western standards, to think of an individual being able to live in 1870 on the equivalent of $10 per year, and to continue for decades on a similar amount of real income, seems little less than incredible. On the Indian standard, however, this is quite possible. Skrine in 1892 gave many examples,[114] one of which is fairly typical of the cost of living of farmers in Northern Bengal,

[112] *Ibid.* From the fact that so many former craftsmen were being forced from their old trades by hard times, this seems a doubtful assumption.

[113] *Census of India*, 1921, VIII, Pt. I, App. W., p. cii.

[114] *Memorandum on the Material Condition of the Lower Orders in Bengal.*

where he says, "the great mass of cultivators prosper." For a family of six persons per day, he gives the following figures:

DAILY COST OF LIVING FOR A FAMILY OF SIX PERSONS

	As.	Ps.
Rice 12 lbs.	3	0
Pulse 12 oz.	0	9
Salt	0	3
Oil	0	3
Vegetables	0	3
Spices and Tobacco	0	3
	4	9
Per year	Rs.	108
Clothing		24
Repairs, etc.		6
	Rs.	138
Per capita	Rs.	23

These persons could live within Naoroji's estimate; indeed, Skrine says, "it is conceded on all sides that the condition of the agriculturist in Northern Bengal has sensibly ameliorated during the last 15 years"; they were, he asserts in another place,[115] "happy and prosperous." We may discount for official enthusiasm when he intimates that in the Dacca division, he has found "the richest and happiest peasantry in the world." [116]

Calculations of standards of living among these people omit all except the barest minimum of coarse food grains. Between 1880 and 1890, 15 rupees per year, that is, 1.25 rupees per month, would buy on the average about 60 pounds, say one bushel, of the principal food grains. This estimate would provide about 1½ pounds per person per day, as against 2 pounds of rice in the above schedule, or 45 pounds per month, and thus would leave 15 pounds of rice per month per person for other expenses. That is, reduced to bread, the average individual would have 1½ one-pound loaves per day, with the equivalent of half a loaf per day to be bartered for other kinds of food, housing, clothing, and all other expenses.

In another study made between 1906 and 1910 in a particular Bengal District,[117] containing nearly 2,000,000 people, 49 per cent were classified as "in comfort," 28 per cent as "below comfort," 18 per cent as "above want" and 4.3 per cent as "in want." The per capita incomes per annum of these groups were respectively Rs. 65 ($22.66), Rs. 43 ($14.33), Rs. 32 ($10.66), and Rs. 26

[115] *Ibid.*, p. 9.
[116] *Ibid.*, p. 15.
[117] J. C. Jack, *The Economic Life of a Bengal District*, pp. 151–4.

($8.66). Only the lowest stratum of 4.3 per cent were in the hungry group to which Sir Charles Eliot had assigned half of the agricultural people. We must remember, however, that Bengal, because of its fertility and more certain rain-fall, is the most prosperous province in India. Of the population as a whole a large proportion are still receiving only the most meagre goods beyond food, which itself is both of poor quality and insufficient in quantity.[118] Whatever the average, many lie far below it.

Investigations among factory workers have produced interesting facts. Among typical factory workers in Madras in 1930,[119] one-third of the families averaging 4.77 persons each, lived on an average income of Rs. 25.5 per month. This is 5⅓ Rs. per capita, or Rs. 64 ($23.04) per year. In Coimbatore[120] similar investigations of cotton mill families showed also that one-third of the families fell in the Rs. 20–Rs.30 (averaging Rs. 25.12) per month group. Here the average per capita income was Rs. 4.5 per month or Rs. 54 per year. For the entire 96 families examined, the average income was Rs. 5½ per month or Rs. 66 ($23.76 per year).

In Cawnpore,[121] out of 729 factory families engaged in textile, engineering and leather industries, 380, or 52 per cent were in the group receiving between Rs. 15 and Rs. 30 per month, the average income being Rs. 22.2 per month. Since the average family in this group contained 4.23 persons, the per capita income was Rs. 5.24 per month, or Rs. 63 per year. For the entire group of 729 Cawnpore families, the average monthly income was Rs. 25–8–6 and the average family contained 4.48 persons, which leaves a per capita income of Rs. 5.71 per month or Rs. 68.52 per year. In all cases these families spent from one-half to two-thirds of their incomes on food, and from eighty to ninety per cent of them were already in debt.

In 1923, the Bombay Labor Office collected the budgets of 3,076 working families whose per capita incomes averaged considerably more than these just given. Since, however, this investigation covered the most expensive city in the country, at a time when wages and prices were still far from settled, it should not be

[118] Mann's *Life and Labor in a Deccan Village*, No. 2. Of the expenditure for food 87.5 per cent was for grains. See p. 124.
[119] Royal Commission on Labour in India, 1931, *Evidence*, XI, Pt. I, pp. 10–20.
[120] *Ibid.*, pp. 21–2.
[121] *Ibid.*, pp. 88–90.

regarded as normal. These figures, already cited above, had been collected before the price debacle of 1930–1 and show average incomes about one-third more than those arrived at by Findlay Shirras in 1911 when the cost of living was perhaps fifty per cent less. But data from smaller industrial centers present a fairer sample for the country as a whole and suggest that per capita incomes still provide only a bare subsistence.

CHAPTER XVI

LABOR EFFICIENCY

THE discussion of wages must be supplemented by a study of labor efficiency. This is particularly important in the case of a country like India where the plentifulness of labor has not incited to great individual efficiency and where, on account of the tropical climate and the religious attitude towards life, poverty is readily accepted or even espoused. The Indian has remained cold to the modern movement for industrial efficiency and his output compares unfavorably with that of most of his competitors. The discrepancy, moreover, seems to become greater rather than less. The Indian makes some advance but the post-War drive for efficiency in Europe, America and Japan leaves him still further behind. The present chapter will present some of the salient facts regarding Indian industrial efficiency and then undertake to offer some reasons for them.

In carpentering, to begin with handicraft labor, one Chinese workman (of whom there are large numbers in India) not only does as much work as three Indian carpenters, but does it better. Of shoe-making, an army colonel stated in 1820 that the hand-products were "uncommonly cheap and good," [1] and in 1901 a man of much experience stated that [2] "the Indian boot-worker did as much work in the day as an English worker but not in the same number of hours." It is likely that his work was also of a lower grade. Present-day shoe factory laborers are far behind those of the Philippines, with whom they might be expected to compare. In Manila there are two large modern shoe factories in which Filipino men and women operate complete American shoe equipment with efficiency equal to that attained in the United States. Nothing comparable is attained in India.

[1] *Bombay Gazetteer*, 1877, p. 441.
[2] *Parl. Papers*, 1909, Cmd. 4519, p. 189.

The Indian Tariff Board has recently found that[3] the number of employees in an Indian match factory "does not much exceed the standard prevailing in European countries and it is probable that in the immediate future the number will be still further reduced"; it also mentions "the remarkable progress in the efficiency of Indian labor," saying "there is reason to believe that in a well organized Indian factory, labor charges form a smaller item in the cost of manufacturing matches than is the case in other countries." This opinion was based mainly upon a comparison with German factories where individual wages were about three times as great.[4]

Mining does not furnish as good examples of comparative efficiency as manufacturing, because mine conditions differ more widely among different countries. Nevertheless, mining is so important a part of modern labor that it must be introduced into our picture. We shall deal only with coal-mining.

The efficiency of Indian miners has greatly improved during the past thirty years. Government figures for a coal mine in Bengal indicate that the output per miner increased by 75 per cent between 1896 and 1921,[5] and the new record is being steadily improved. As the methods of working have changed, not all this increase is due to higher personal efficiency. In the '90's a goodly amount of coal was pushed out on inclines by hand and many shallow pits were worked by windlass, or "gin," turned by women. Although mines have gone deeper, they are still relatively shallow, and in recent years a greatly improved equipment has been added. All the chief mines are now equipped with electric light and mechanical power, and a large number have electric power.[6] A number of mechanical coal-cutting, handling, and hoisting machines have been introduced, but their use is still limited since only 15 per cent of Indian coal is mechanically mined as contrasted with 75 per cent of American bituminous coal so worked.

Mining conditions in India are remarkably good and the Indian miner ought to rank well in output as compared with the miners of other countries. As a Scotch manager said: "Wa'at God A'mighty left out o' the Indian miner's intellect he made up in minin' con-

[3] *Report of the Indian Tariff Board regarding Protection to the Match Industry*, 1928, pp. 4–7. One factory had been operating continuously and fairly successfully in Ahmedabad since 1891, but most of them had started after 1922.

[4] *Ibid., Evidence*, I, pp. 638–43.

[5] *Prices and Wages in India*, 36th Issue, p. 212.

[6] See Ch. XII.

ditions." Yet the Coal Committee appointed by the government of India reported: [7]

> The labour in Indian mines is inefficient and in no country in the world, which has a coal industry of its size, is the output per head per annum so low as it is in India. . . . The reasons for this are so well known that a brief reference to them is all that is needed here. They are that the labourer in the Indian coal fields is primarily an agriculturist and, considered as a coal miner, is merely a casual and unskilled worker.

In spite of far worse mining conditions in Japan, the average output per miner above and below ground was in 1925 larger than in British India—122 tons against 115 tons. Indian coal mines are shallow and dry, the seams very thick, and usually very little inclined. Japanese mines are deep, and earthquakes have so broken the strata that abundant water, coming both from the rains and from the sea (two of the very best mines extend under the ocean) makes the work heavier, more unpleasant and more dangerous. In South Africa, efficiency is much greater, the miners in three different districts there averaging an annual output of 193 tons, 316 tons and 328 tons, respectively. But during the depression, in the coal trade, efficiency has recently risen in India. The output in 1918 was 108 tons; in 1923, 98 tons; and in 1929, 135 tons per person employed both above and below ground. The corresponding production in Great Britain in 1925 was 221 tons and in the United States in 1929, 1,064 tons per person employed in bituminous, and 487 tons per person employed in anthracite coal mining.[8] The English miner produced twice as much as the Indian, and the American over eight times as much.

Some mine managers who have had experience in both India and England insist that the Indian miner is not comparable to the English. One superintendent claims that under similar conditions the British miner will produce eight times as much as the Indian. He also claims that a group of four Indian men operating a coal-cutter will cut only half the amount which would be cut under similar conditions in England by two men and a boy. In comparing Indian output with American or English, however, it is necessary to note that the coal-cutting machine is not used in the same way. In the Occident the cutter is commonly used to cut straight across

[7] *Report of the Indian Coal Committee*, 1925, I, p. 35.
[8] *U. S. Commerce Year Book*, 1931, p. 289.

a long face of coal, the coal being removed by cars on a track and the cavity filled up behind with sand pumped from outside. The tracks facilitate the shifting of the machine. In India, coal is usually dug out of alleys, the cutter working merely across the end of the alley. The cheapness of female labor for carrying coal has resulted in trackless alleys thus making the movement of the machine a very slow and laborious process. Hence the mechanical cutter is not so effective or so economical as in most other countries. In fact, the recent Coal Committee asserted that the cost of mining by mechanical cutter in India was more than by hand.[9] In view of the increase in the number of these machines, however, this statement seems doubtful. Indian coal mines also employ a very large proportion of hands above ground, and their efficiency is lower still, owing partly to poor equipment. With Indian manual labor at its present price, the methods used above ground are sometimes actually cheaper than the mechanical method.

The iron and steel industry furnishes a fair comparison between the efficiency of Indian and other labor, though the industry is new to the country. In 1912, when it was first started on a large scale, many Europeans and Americans were employed. High prices and urgent demand during the World War made their retention desirable, but considerable advance towards their withdrawal has since been made. For several years, the Tata Iron and Steel Company has employed only Indians to operate the coke ovens at its plant.[10] The total number of non-Indians in the entire concern was reduced by 30 per cent in twenty months, ending June, 1926; and the number employed in the new sheet mills was reduced by 67 per cent in the same period, although the output of steel had more than doubled.[11]

The comparative number of hands required in a given steel plant varies widely in different processes. On some machines an Indian is as effective as a workman of any other race; but this is the exception. For the operation of an electric crane, one man is sufficient in America as against three in India. Figures for the entire production in the United States, when compared to those for a new concern in India, working with new and wholly up-to-date American

[9] *Report of the Coal Committee*, 1925, I, p. 36.
[10] But with a marked increase in numbers.
[11] *Report of the Indian Tariff Board regarding continuance of Protection to the Steel Industry*, 1926, I, p. 76.

equipment for producing coke and pig iron, show that whereas the tonnage of coke per man employed in the United States was 2300 tons,[12] it was only 370 tons [13] in India, or less than one-sixth as much. There was similar disparity between the output of pig iron per man, these figures being 1361 tons in the United States [14] against 281 tons, or just over one-fifth as much in the best Indian concern. The American manager of the largest Indian mill recently placed the comparative efficiencies at the startling figures of 5 to 1.[15] Nevertheless, the Indian wages for pig iron production are so low that the total labor cost per unit of product appears to be considerably less than in America. Wages at American blast furnaces average for all concerns $1.21 per ton of pig iron produced as against 54¢ in the best Indian plant.[16] Regarding the labor cost of producing steel, however, the Indian Tariff Board decided that "the labor cost per ton of finished steel at Jamshedpur is unquestionably higher than the corresponding cost in western countries." This cost has moreover risen considerably in the intervening years.

The most serious defect, however, is the dearth of Indians capable of taking over the administrative and technical positions. It is in the steel department, in both production and fabrication, that the large number of these high-priced specialists is required. Most serious of all, it is claimed by some Europeans connected with the industry that the imported experts teach the Indians superficially. This tends to keep the work in the hands of imported men who, once they have been hired and brought out at the company's expense, are in a particularly independent position. Progress is, however, being made. There is need for educated Indians in these positions, but this "blacksmithing" does not appeal to young men bred in the genteel traditions. One engineer asserted that out of sixty educated young apprentices only two showed signs of becoming fit even for foremen. The high labor cost of steel production in India is still due to the great expense of imported European help.

A large tin-plate mill under western management, in which pro-

[12] In 1928. See U. S. *Commerce Year Book*, 1929, II.

[13] In 1925–6. See *Report of the Indian Tariff Board regarding the continuance of Protection to the Steel Industry*, 1926, p. 23.

[14] In 1927. See U. S. *Commerce Year Book*, 1929, pp. 386–8.

[15] Royal Commission on Labor in India, 1931, *Evidence*, IV, Pt. 2, p. 425.

[16] In 1927. *Report of the Indian Tariff Board regarding the continuance of Protection to the Steel Industry*, 1926, p. 23. I have added 25 per cent to this figure for European supervisors and technicians, that being approximately the percentage shown in that work at the Tata plant.

duction is up to the American standard, employs about triple the hands required for a similar Welsh mill. Yet the average wage of Indians here is such that the labor cost per unit is much lower than in either Wales or the United States.

In some engineering work the Indian is nearly the equal of the European or American, while in others he is far inferior. The superintendent of a locomotive repair shop stated in 1909 that two Indians were equivalent to one English mechanic.[17] A more recent estimate is that one European does the work of three Indians. In 1926, the State Railway Workshops Committee compared labor efficiency in Indian Railway workshops to that in Great Britain, South Africa and New South Wales.[18] It found that in ten Indian shops each "heavy repair" required over three times the number of hands required for the same task in ten non-Indian shops. In the preparation and putting together of structural steel and such material as railway switches, two Indians are required to do the work of one Englishman. One engineering firm places efficiency at only one-fourth the British standard.[19]

In 1917 a British surgical instrument manufacturer in Bombay bemoaned the decline in efficiency of the Indian workman, but said: [20] "Fifteen to twenty years ago I would have backed my native workmen on the then good wages of Rs. 30 to 35 per mensem against the best British workman in the same line." Though in 1917, wages were as high as Rs. 45 to Rs. 60 per month, the workers were "hopeless by comparison." The interesting part of this statement, if true, is that the Indian worker had once been equal to the British.

Superintendents of army equipment factories find Indian workers skilful and decidedly effective. Indeed, throughout the principal oriental countries, as compared with the Occident, a larger proportion of the engineering workmen are trained mechanics. They have gone through a long apprenticeship in hand work which is seldom done in the mechanized West. These men are often highly skilled but they work slowly. In the casting of delicate parts, the Indian metal worker is still inferior. The old metal trades were not highly developed and the new worker has not yet learned to love his trade

[17] *Parl. Papers,* 1909, Cmd. 4519, p. 227.
[18] *Report of the State Railway Workshops Committee,* 1926, p. 34.
[19] Royal Commission on Labor in India, 1931, *Evidence,* V, Pt. 1, p. 389.
[20] Indian Industrial Commission, *Evidence,* IV, p. 539.

or to enjoy work which requires elaborate calculation or precision. Machine manufacture is at a great disadvantage and several vigorous attempts to develop it since the War have generally failed.[21] Indian backwardness may be explained partly by the fact that remarkably good engineering products could be imported from Europe with low charges for freight and practically no duty. Indian engineers could therefore not compete and gain experience in their home market. By means of a protective tariff and subsidies, Japan has given its engineers greater opportunity for development.

In work demanding considerable bodily vigor, such as driving a riveting machine, the Indian worker is generally handicapped. In Calcutta engineering shops, three men are required to drive a riveting machine which would be handled by one man in America, and the output is so much less that the efficiency of men is as one to five. But even then, labor cost is less in India.

Indians do better in textile industries. In woolen mills, where there is more play for the delicate touch—the craftsman's art—their efficiency is at one-third to one-half that of English workers.[22]

Jute manufacture is a type of work for which they are admirably fitted. Indian jute workers do not accomplish quite as much as jute workers in other countries, but they do more than any others for the pay they receive and some are the equal of any jute workers in the world. In no process, probably, is the average Indian superior to the average European worker. Nevertheless, two ex-presidents of the Indian Jute Mills Association, who are among the most experienced manufacturers in India, and both of whom learned their business in Dundee, call the Indians respectively, "mighty efficient" and "the most efficient jute laborers in the world." It should not be forgotten, however, that some 75 per cent of the Indian workers are mature men while about 65 per cent of the Scottish and perhaps a larger percentage of the German workers are young women.

Forty years ago the Indian Jute Mills Association estimated that a given mill in India required from 25% to 35% more laborers than in Scotland.[23] Usually the estimate has been less favorable to India,

[21] In an exceptional case in 1927, jute machinery was manufactured near Calcutta and shipped to Brooklyn, New York. The purchaser stated that it was better and no more expensive than if bought in America.

[22] *Parl. Papers*, 1909, Cmd. 4519, pp. 196, 411.

[23] Watt, *Commercial Products of India*, p. 424.

though one of the best informed manufacturers says now that 1⅓ Indian hands equal 1 Scotch worker and another places the proportion at 1½ to 1. The Secretary of the Jute and Flax Workers Union in Dundee recently visited India and placed the proportion at 3 to 1.[24] A more common statement, recently supported by the Indian Jute Mills Association, is that 2 Indians take the place of one Scotch worker.[25] In 1907, the jute mills of Great Britain employed about three persons for one loom and 20 spindles.[26] At about the same time, India was employing 6 persons for 1 loom and 22 spindles; [27] but most employees in Indian mills were working 13½ hours, or 1½ shifts, per day. Hence, per shift, the Scottish mills were using 3 persons as against 4 in India.[28] At the end of 1914 a German student of the jute industry said that an Indian mill used 2½ times as many laborers as would be required in his country.[29] From recent limited observations in Germany, the writer thinks that 1½ times is now more nearly correct. The best Indian mills, working on high quality hessians, now employ about 5 hands for one loom and 20 spindles.[30] A good German mill in 1928 used 3 hands for one loom and 13 spindles. It is more difficult to compare American to Indian labor efficiencies. Even more than Dundee, America has been forced by India to produce specialties in which she has a more exacting market and is at less disadvantage.

On particular machines the amount of labor required varies considerably. Indians do relatively better in the spinning than in the weaving departments. In 1907, one person tended 60 spindles in Dundee,[31] as against 35 in one mill in India. In 1927 the average in a very good Indian mill was 50 spindles per spinner. This varied, however, from 28 on coarse sacking weft yarn to 72 on good quality

[24] *Exploitation in India,* by Thomas Johnson, M.P., and John F. Sime, p. 4. It seems that the authors did not take account of the extra half shift.

[25] Royal Commission on Labor in India, 1931, *Evidence,* V, Pt. 1, p. 304.

[26] Graham-Clark, U. S. Dept. of Commerce. Special Agents Series, No. 74, pp. 103 and 127.

[27] Wallace, *The Romance of Jute,* p. 49.

[28] This is the figure given in 1927 by one of the leading Scotsmen in the Indian Industry.

[29] W. van Delden, *Studien über die Indische Jute-industrie,* p. 91.

[30] The single shift force now employed in India is somewhat larger than "normal" because when hours are reduced by one-half, laborers and output are reduced by much less. Machinery is worked more intensively, with more persons per machine, and a larger force retained against the hoped-for day when the 81 hour week is required.

[31] *Parl. Papers,* 1907, Cmd. 3617, p. 69.

hessian warp yarn. German spinning girls tend about 50 per cent more spindles and their machines run faster, partly owing to more improved machinery. In the United States one girl tends about 144 spindles.

In weaving, practice varies still more widely. In Germany, although there is some experimenting with semi-automatic looms, one weaver commonly tends one plain loom. In Scotland, the weaver tends two looms and in America, before the War, when Hessians were much produced, one girl occasionally tended 4 looms. In India, a jute weaver tends only one loom. There is a large demand in America for coarse bagging for cotton bales which is woven both in India and the United States. One person tends one loom, and a company producing in both countries states that the processes are identical and that in India "it was found possible to maintain the efficiency of the department at a very high level.[32]

The table on page 370, composed of two separate tables, apparently furnished by different persons, shows the comparative numbers of hands required for various processes in a Calcutta and a Dundee Jute Mill in 1907.[33]

These figures make a very favorable showing for Indian efficiency, but they do not tell the whole story. On account of the twelve per cent additional hands to replace absentees and loiterers and the large number of overseers, sweepers and extras of all sorts, the total numbers employed in the two factories would be less complimentary to Indian workers.[34]

Output per machine does not vary widely. In 1927 a fair average per Dundee spindle was 4 spyndles (of 14,400 yards each) of 7 pound hessian warp per 54 hour week. In the same year a Cal-

[32] *Jute,* published by the Ludlow Manufacturing Associates, 1928, pp. 99–100.
[33] *Report of the Textile Factories Labour Committee, Parl. Papers,* 1907, Cmd. 3617, pp. 67, 69.
[34] Considerable dishonesty and disloyalty among the staff increases the number. A Scotch assistant in charge of a gang of coolies working outside the mill suddenly announced one morning that instead of leaving the roll to his Indian *babu,* he would call it. Within a few minutes the gang gathered about him for the roll call, but there were several *more* men than names on the roll. The explanation is that the usual roll-taking was a very irregular affair, and fearing lest the "boss" should learn that several men on the pay-roll were not working, the *babu* had sent an S. O. S. about the mill for volunteers to answer. In the hurry more came than were needed. In another case the manager decided to distribute the pay-envelopes himself and in order to avoid the giving of two or more envelopes to the same man or to men not working, he took along a bucket of red paint with which he marked the bare foot of every person paid. The result was that, at the end, he had a considerable number of uncalled-for envelopes.

COMPARATIVE NUMBERS OF HANDS REQUIRED IN INDIA AND SCOTLAND FOR TENDING DIFFERENT MACHINES

	Calcutta Mill (Ganges Mfg Co.)		A Dundee Mill	
	Women	Men	Women	Men
Jute Softener . . . . . Feed End		2	3 and	¼
Jute Softener . . . . . Delivery End	2		or	3*
Breaker Card . . . . . Feed End	2		2	
Breaker Card . . . . . Delivery End	1		1 or	1
Finisher Card . . . . . Feed End	1		½	
Finisher Card . . . . . Delivery End	1		½	
First Drawing Frame . . . Feed End	1		1	
First Drawing Frame . . Delivery End	1		1	
Second Drawing Frame . . Feed End	1		1	
Second Drawing Frame . Delivery End	1		1	
Roving Frame for Sacking Weft . . . . . Feed End	2		1	
Roving Frame for Sacking Weft . . . . Delivery End		1	1 or	½
Roving Frame for Warp and Hessian Wefts . . . Feed End	1		1	
Roving Frame for Warp and Hessian Wefts . . Delivery End		1	1 or	½
Spinning Frame		(Spindles)	(Spindles)	
Sacking Weft		1 to 36	1 to 60	
Sacking Warp and Hessian Wefts		1 to 60	1 to 60	
Hessian Warps		1 to 90	1 to 60	
Doffing		(Bobbins)	(Bobbins)	
Spinning Bobbins, Sacking Weft		1 to 72	1 (or child) to 45	
Spinning Bobbins, Warp and Hessian Weft . .		1 (child) to 78	1 (or child) to 72	
Dry Beaming Machine		5		1 and 1 boy
Looms		1	½ (except over 60" width)	
Calendar Machine		5		2

* This work is much more difficult in Dundee as all jute comes there in hard pressed bales.

cutta jute mill was producing just a fraction under this amount of hessian yarn per week of 54½ hours.[35] The speeds of looms are not very different, the Indians operating about as fast as workers in either Germany or Scotland.[36] The Indian speed on 36-inch looms

[35] Actual spyndles of yarn per 13½ hour day in a Calcutta Jute Mill in 1927: Hessian warp—.93, Hessian weft—1.12, Sacking warp—.98, Sacking weft—.84. For Hessian warp this makes the figures for Calcutta and Dundee as 72 is to 400.

[36] Graham Clark, *op. cit.*, p. 116.

is about 159 picks per minute and the percentage of efficiency is from 75 to 80. In the very coarse fabric an American weaver gets a 25% larger product than the Indian, the gain being due to such factors as quicker speed of loom operation and less waste of time in changing shuttles.

The cost of labor employed directly on the task, excluding supervisors and auxiliary help, is much less in India than in Scotland, Germany, or the United States. In Scotland, a girl received about 28.5 s. ($6.12) per week of 47 hours.[87] Since she tends about 108 spindles this amounts to 1.05¢ per spindle per day. In India, a worker tends about 50 spindles and the wage is Rs. 4 ($1.44) per week or 0.48¢ per spindle per day. We have already seen that outputs per spindle do not differ greatly. The output per spindle appears to be higher in Germany and the wage per spindle about the same as in Scotland. Spinning wage per unit of output is probably half in India what it is in either Scotland or Germany.

The direct labor cost of weaving is also much less in India though a weaver in Scotland produces about twice as much as an Indian in the same time. The direct cost of weaving in India is, for 26½ in., 8 × 9 sacking, about .174¢ per yard. (This is burlap cloth with 8 threads one way and 9 threads the other way per inch.) For better grade hessian the rates are higher, rising to .2466¢ for 11 × 12, 36 inch cloth and to about 20 to 25% more than this for 60 inch cloth of similar type. Wages for Dundee in 1914 show the direct cost of weaving labor for a given cloth of 11 warp and 13 weft threads per inch to have been .318¢ per yard.[88] As wages in jute factories in Dundee were 45% higher in 1924 than in 1913, the rate there would be about .461¢ per yard. In India, after the changes due to the War, the rate for weaving the same cloth was in 1927 only .277¢ per yard. The labor cost of weaving jute bagging for cotton bales is very much higher in the United States. While there is a difference in efficiency of only 25 per cent, the American wage is seven or eight times as much as the Indian. Since the American tariff act of 1922 there has been an import duty of .3¢ or .6¢ per square yard according as the product weighs less or more than two pounds per square yard. A loom produces some 1200 yards per day, and since it is easy to make the weight just

[87] Figures for 1924. *Ministry of Labour Gazette*, 1927, p. 196.
[88] *Ibid.*, pp. 131, 132, 134.

over two pounds, this allows an advantage up to $7.20 per loom per day. This commodity is produced for the American market by both Indian and American factories.

The wages of an Indian jute mill worker recently (1930) averaged about 24 rupees ($8.64) per month as against about 33 shillings per week or $34.32 per month, *i.e.*, about 4 times as much, in Dundee. Hours in Scotland were also only 47.5 per week as against 54 in India. If we calculate liberally, allowing one Dundee worker to 2½ Indians, the Calcutta labor expense is still only four-sevenths that of Dundee. The cost for the labor force is increased by the extra cost of European supervision, but this is much cheaper in jute than in steel manufacture.

There is much evidence that total expenses of production are far higher in Dundee than in India. Since capital and upper staff expenses are less in Dundee, this difference must be due to labor expenses. In 1908 it was stated by the superintendent of two Indian mills that the average cost of manufacturing hessian cloth in Calcutta was Rs. 120 per ton as against Rs. 180 per ton in Dundee[39] and the accuracy of these figures was attested by other reliable witnesses.[40] This industry has many advantages in India, not least of which is the tractable labor supply, exceptionally well-equipped by both nature and training.

Cotton manufacture is another textile industry for which the Indian worker has had long training and in which he ought to be highly efficient. In fact, however, his ranking is low. There is some difficulty in a comparison of present and past efficiency, because machinery, especially spinning machinery, has changed radically since the early days. International comparisons are rendered difficult by numerous factors, one of which is the wide difference in raw materials and articles produced. The greatest hindrance to comparison is the use of very high grade raw materials in Lancashire and the United States, of somewhat lower grades in Japan, and of very low grade materials in India. The poorer the materials the coarser the products produced, and hence the larger the amount of materials to be handled, the greater the breakages and the more time spent in stoppages and in shifting material. If labor is available and cheap it is profitable to keep the machinery operating as steadily as pos-

[39] *Parl. Papers*, 1909, Cmd. 4519, pp. 253–4.
[40] See especially the evidence of Mr. Small, *Ibid.*, p. 277.

sible. The average weight of raw cotton spun per spindle in India is four times as great as in Great Britain.

Such comparisons are also complicated by the difference in hours worked in the newer industrial countries during the formative period. Fifteen hours per day was common in India until two decades ago while other countries usually had much shorter days.

It is generally stated that efficiency has improved during the past few decades, but observers disagree.[41] The numbers employed on a pair of spinning mules were halved in the twenty years 1868–1888.[42] In 1870, 291,000 spindles and 4,090 looms were being operated by a daily average of 8,103 employees. In 1911 the total number of spindles and looms in Bombay was roughly ten times as great, while laborers employed had risen to thirteen times the number for 1870.[43] The product per machine, however, is much greater. One mill now secures double the production per spindle that it got in 1875.[44] Though the change in many tasks is almost imperceptible, on the whole there has been a gradual advance in efficiency, especially in ability to produce better goods, and also in amount of work per man.

Two English experts were quoted in 1908 as saying that[45] "in no country on earth except Lancashire do the operators possess such a natural leaning to the textile industry as in India." At about the same period it was stated that the hands required were two and one half times the numbers used in a German mill.[46] Most comparisons naturally have been with English labor. A leading British manufacturer in India, Mr. Simpson, gave for 1908 a set of comparative figures.[47] Except in the engine room, the widest disparity was in spinning where 4.32 Indians tended the spindles which would be

[41] *Parl. Papers,* 1909, Cmd. 4519, "No improvement," pp. 95, 128, 135, 200. "Improvement," pp. 117, 326. Opinions of present day mill officials vary nearly as widely but most of them mark some improvement.

[42] *Report of H.B.M.'s Chief Factory Inspector,* 1887. *Parl. Papers,* 1888, XXVI, Cmd. 5328, p. 117.

[43] *Bombay Mill Owners' Association Statement to Tariff Board,* 1927, Table 1.

[44] In 1861 the spindles of Bombay Presidency were producing about seventeen ounces of yarn per week, the highest counts of which were 16s and 20s. (Cassels, *Cotton in the Bombay Presidency,* p. 345.) Indian spindles could now turn off double that amount of such counts. An old spinning jobber in the Manockji Petit Mill in Bombay told me that the product per spindle on ten counts is now just under double what it was in the 'sixties. A few of the best mills produce up to nearly three times that amount even of 20's count.

[45] Messrs. James Platt and Henry Lees, quoted in Dr. Nair's Minute of Dissent to the report of the Factory Labor Commission. *Parl. Papers,* 1908, Cmd. 4292, p. 84.

[46] Dr. Nair's Minute of Dissent, *op. cit.*

[47] Mr. C. B. Simpson, *Parl. Papers,* 1909, Cmd. 4519, pp. 313–4.

tended in England by one worker. Mr. Simpson's figures show so great a divergency for the engine room that they suggest a marked difference in some part of the work such as stoking. Differences were least in the simpler manipulations like warping and winding. In drawing and twisting, the numbers were practically the same while the average for the entire mill was 2.67 Indian hands to 1 English. The figures were summarized for departments as follows:—

	Proportion of Indian Hands to One English
Engine Department	5.33
Carding Department	3.70
Spinning Department	4.32
Doubling Department	3.33
Winding Department	1.72
Colour Winding Department	2.48
Colour Pirning Department	1.63
Warping Department	1.46
Sizing Department	2.53
Reeling Department	2.69
Twisting and Drawing	1.03
Weaving Department	2.77
Entire Mill	2.67 to 1

Mr. Simpson also stated that some correction would be necessary on account of the difference in materials and product. "He did not mean to say that if 982 Lancashire operatives came to India they could run a mill now worked by 2,622 Indian operatives." Besides the difference in materials and product, 67½ hours per week were worked in Madras at that time, against 54½ hours in Lancashire. The week was thus 23.8 per cent longer, making the proportion for the entire mill 2.15 to 1 for the same time. One of the most successful Parsee managers came to the defense of his countrymen's efficiency, claiming that on account of coarse materials and laboring conditions, the Indian's work was harder than the Englishman's.[48] One English manager also thought that "the English operative would not do more work in India than the Indian operative." [49]

In the intervening quarter century there have been changes everywhere, but they appear to have been less marked in India than in occidental countries. Also new competitors have appeared in Asia, who have far outstripped the present efficiency of Indian mill hands.

Some writers claim that British workers now tend two and a

[48] Sir Bezonji Mehta, *ibid.*, p. 366.
[49] *Ibid.*, p. 321.

half times the machinery credited to them by Mr. Simpson in 1908,[50] whose estimate of the number of Lancashire spindles per spinner was 500. The Indian Tariff Board estimated these at 540 to 600,[51] which is an improvement of only about twenty per cent. In weaving, the change is greater: from 2½ looms in 1908 to four, and occasionally six looms in 1927.[52] The most reliable authority says that on the average the English weaver tends four looms.[53] At most the gain in this department is not over 100 per cent.

The statement that one Lancashire hand is equal to four Indians [54] seems also to be exaggerated. The Indian spinner usually tends about 175 spindles, but there are numerous exceptions and it is not unusual for 270 to be tended. In some cases where good cotton is used for spinning counts up to 60's, he takes as many as 420 spindles. The average is perhaps about 200 per adult spinner, or one-third the number tended by an English hand. In weaving, the proportion is about the same—one English hand tending four looms, while the typical number in India is two and in the smaller centers many workers tend only one loom. In only a few mills, and at the cost of much difficulty, has it been possible to induce Indian weavers to tend three or four looms. This leaves the proportion at roughly about one to three in both these main tasks.

But this takes no account of difference in quality of cotton, quantity of raw materials handled and grade of products. Corrections for these factors would leave the relationship more like one English hand to two Indian. It is very common for Lancashiremen in Indian mills, as managers or heads of departments, to say that on an average one Englishman does the work of two Indians; and some claim that, considering the materials, the products, and the climate, the proportion is still more favorable to the Indian.

The discrepancy between Indian and American labor efficiency

[50] Report of an investigation made by J. Hindle & M. Brothers for the United Textile Factory Workers' Association, *Conditions in the Textile Industry of India,* 1927, p. 6. The figures are: 1002 workers for a mill containing 92,880 spindles and 1,937 ordinary Lancashire looms.

[51] *Report of the Indian Tariff Board on the Cotton Textile Enquiry,* 1927, p. 136. Some place this figure at as much as 700. In 1912 English spinners tended 400 to 800 spindles. Copeland, *The Cotton Manufacturing Industry in the United States,* pp. 298, 303.

[52] *Ibid.,* p. 137.

[53] Mr. Pearse, the general secretary of the International Federation of Master Cotton Spinners' and Manufacturers' Association, Manchester. *The Cotton Industry of Japan and China,* 1929, p. 142. Copeland gave the same figures for England 17 years earlier. *Op. cit.*

[54] Hindle and Brothers, *op. cit.,* p. 6.

is still greater than between Indian and English. The proportion of looms to spindles is approximately the same in Indian and American mills yet the average Indian mill uses 3 1/3 times as many hands as the average American mill. But there are remarkably wide variations. As in Japan, there has been a great improvement in some American mills in the past decade. Some excellent Indian mills, until recently paying very high dividends, have been using fourteen times as many hands as are employed in some of the best American mills. In this case, the differential features are low quality of materials, less efficient machinery, variety of products, plentifulness, and consequent low marginal productivity and wage of labor, and no such improvement in cotton mill organization as in America since 1920.

But it is not only in comparison with occidental labor that Indian cotton workers are inefficient; they also accomplish less than other oriental workers. An American expert said in 1918:[55] "Unquestionably . . . the efficiency of the Indian operative is much lower than that of either the Japanese or Chinese mill hand." This comparison is with Asiatic laborers who have familiarized themselves with an alien institution, just as India has done. The contrast is the more remarkable because 80% of the Japanese mill hands are young women (of whom some twenty per cent are under 16 years of age) who come from farms and villages and spend only from one to three years in the factory, while 78 per cent of the Indian hands are grown men, and, though they remain attached in some way to the land, generally have had considerable experience in mill work.

The average number of hands per 1000 spindles in a pure spinning mill in Japan was 16.5 per shift in February 1925,[56] as against 23 in Ahmedabad, 24 in Madura, 24.2 in eight Bombay spinning mills, and 27.6 in seven other up-country Indian mills.[57] It appears that efficiency has very considerably improved of late for in 1932 the Tariff Board placed "the complement of labor" at 15 per thousand spindles. Most indications are, however, that this figure is too low. In Japan girls work only 1½ years on the average but they tend 175 to 800, and average 400. Those who remain are able to

[55] Ralph M. Odell, U. S. Department of Commerce, Special Agents Series (1918), No. 157, p. 41.

[56] W. B. Cunningham, British Consul at Osaka, *Report on the Cotton Spinning and Weaving Industry in Japan*, 1925–6, p. 57.

[57] *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, p. 119.

tend 400, 600, and even 800 spindles in the second, third and fourth years respectively. The difficulty is that the few girls who stay longer inevitably progress to the more serious work of weaving, and that since Japanese machinery runs much faster than American and labor is so cheap, it is more profitable to add extra helpers on each machine. Some Japanese mills show much higher efficiency than the average, working with ten hands per 1000 spindles, all processes included, though this is generally when yarn is sold direct to weavers and no packing department is required.

Comparisons with Chinese labor are not easy because it is often poorly organized and managed. In many Chinese mills, a contractor furnishes a set of poorly trained hands to turn out equally low grade products. In well-managed Japanese mills in China the efficiency of Chinese women lies between the average Japanese and the best Indian workers, and they improve rapidly. Such mills use twenty hands per 1000 spindles. Direction in this case is wholly Japanese, with a young overseer for every fifty Chinese laborers. This combination produces a much better result than is achieved either in Indian mills or in the average Chinese mills.

In weaving, the Japanese workers are much more efficient, operating from four to twelve plain looms as against the prevalent Indian practice of two looms. Great changes are also taking place in Japanese spinning and weaving efficiencies. Whereas ten years ago Japanese girls tended an average of only 240 spindles or 2½ plain looms,[58] all except the new apprentices are now tending an average of 400 spindles and as many as eight, ten and twelve looms when fitted with the automatic stop motion. The average for mills in the Spinner's Association is 5.5 looms per weaver.[59] Whereas there were no automatic looms in use a decade ago a large and increasing number is now being used and Japanese girls are tending usually 30, but in one case as many as 60, running at 180 to 200 picks per minute. The highest numbers which I have seen recorded for any other country are for the United States, in one case, 72,[60] and in another, 80,[61] and in another, 113 [62] automatic looms. Even a Chinese woman sometimes tends as many as eight looms with

[58] United States Tariff Commission, *The Japanese Cotton Industry and Trade*, pp. 114–5.
[59] Pearse, *The Cotton Industry of Japan and China*, 1929, p. 142.
[60] See *Revue Économique Internationale*, January 1929, p. 119.
[61] See *Bombay Labour Gazette*, April 1929, p. 754.
[62] *Ibid.*, Dec. 1931, p. 370.

warp stop motion,[63] though Chinese weavers in general are yet much behind those of Japan and tend per weaver, only a bare two looms. In weaving they and the Indians are about equally inefficient.

Contrary to the usual assumption, machinery is run faster in oriental than in occidental countries[64] and, except for more stoppages on account of poor materials, is kept more steadily in motion. Indian plain looms are often geared to between 225 and 250 picks per minute, and attain a production of about 80 per cent efficiency, which is much higher effective speed than in the United States.

In America machinery is relatively cheap and labor dear; therefore the best results are obtained by applying large amounts of machinery to one laborer. His productive capacity must be fully utilized, even though he has so much machinery under him that some of it is nearly always idle. In India conditions are reversed. Labor is cheap and machinery is relatively dear; therefore the best results are obtained by applying large amounts of labor to a single machine. Its productive capacities must be fully utilized even though so many laborers be employed that some are nearly always idle. In the one case cheap machines are kept in abundance so as to derive the largest return from expensive labor, while in the other cheap labor is kept in abundance in order to secure the largest return from the expensive machinery. This applies especially to India and China, and applied also to Japan until recent increases in wages there have made it advisable to economize on labor.

A rough comparison of the efficiences in some leading cotton manufacturing countries is shown in the following table, which gives the number of hands employed per thousand spindles plus the looms used; also pounds of raw cotton consumed per spindle per shift in recent years.[65]

Numbers of persons employed per thousand spindles and amounts of raw cotton consumed offset each other to some extent.

[63] Pearse, *op. cit.*, p. 171.

[64] Mr. Pearse says of spinning in Japan that "the speeds are very high in this country" (*ibid.*, p. 78), and of weaving that "the production per loom is higher, certainly not lower, than in England for similar cloths." *Ibid.*, p. 142.

Over a decade ago an American investigation found product per spindle on 20's yarn to be 16 per cent higher, and loom output 6 per cent higher in Japan than in the United States. U. S. Tariff Commission, *The Japanese Cotton Industry and Trade*, 1921, pp. 114–5.

[65] Compiled from official figures and others, contained in a Memorandum on Cotton published in preparation for the International Economic Conference, Geneva, 1927.

England uses good cotton and produces fine yarns and high-grade fabrics, while India uses the poorest cotton, produces coarse yarns and a great variety of low-grade fabrics. Four and three-tenths

Country	Operatives per 1000 Spindles, Plus the Looms Used per Shift *	Pounds of Raw Cotton Consumed per Spindle per Shift (per Annum)
Great Britain	10	26.4
U. S. A.	13	85.8
Japan	26	111.1 †
India	43	97.7

† Looms per 1000 spindles are approximately equal in the United States and India, *i.e.*, about one loom per 50 spindles. Those concerns in the Spinners' Association in Japan to which these figures apply have about one loom per 75 spindles.

* Japanese mills operate double shift. Actual consumption was 222.3 lbs. per spindle.

times as many laborers are required to operate Indian as English machinery but they handle three and seven tenths times as much material, and that of a far poorer quality, making correspondingly more breakages and trouble. The United States uses good material and produces medium grade goods, employing thirty per cent more labor per unit of machinery, but handling three and two tenths times the material handled in England. The figures for Japan are interesting, showing relatively double the number of hands employed in the United States, and a consumption of material thirty per cent greater per spindle; the material is of decidedly poorer quality, since about two-thirds of her supply is Indian and Chinese cottons. According to this table the Indian workers are much the least efficient.

As to actual cost of labor compared to its output, these findings tell us something. The average wage of cotton operatives in Bombay Presidency in August 1923 was Rs. 32.1 per month or at par of exchange, about $11.68.[66] If here, on the average, 3 1/3 times the number of hands employed in an American mill are used, this is equivalent to a monthly wage for a given amount of work of $38.93. Average wages in the American cotton mill industry for the same time were about $76.72 per month.[67] The inference is that labor costs in India are about half those of cotton mills in the United States.

[66] *Report on an Enquiry into the Wages and Hours of Labour in the Cotton Mill Industry*, August, 1923, p. 12.

[67] *U. S. Statistical Abstract.* They remained about the same in 1928.

Several recent statements have been made as to relative labor costs in India, Japan and England. Two labor representatives have declared that cotton labor was no cheaper in India than in Lancashire.[68] It has also been claimed that the cost of spinning labor is 47 per cent higher in Japan than in Lancashire.[69] A still more recent estimate by a highly qualified expert gives a different view which seems a little too favorable to Japan but is much nearer the truth. Pearse says that in Japan [70] "the labor cost of spinning 20's counts is about ½ d. (1¢) per pound cheaper than that of the cheapest countries in Europe"; and that the labor cost of weaving on plain looms is only one-third to one-half what it is in England. The Indian Tariff Board states in 1932 [71] that "the labor cost per pound of yarn of average count 16s in a Bombay mill exceeds the cost in a Japanese mill by over 60 per cent, and the labor cost per loom per day on plain grey cloth in a Bombay mill is over three times the cost in a Japanese mill." Yet it also states that "the labor cost of weaving in a Bombay mill is estimated at 15 per cent below that in an American mill; and the labor cost per pound of yarn in Bombay is less than half the cost in a Lancashire mill."

While it is difficult to arrive at proper comparative figures in matters of this complexity and variation, it appears that in some current comparisons too little attention has been given to the differences in speeds, wages, and materials.[72] Lancashire labor cannot be cheaper than either Indian or Japanese, when its cotton industry with skilled management and facilities for transport and finance has been severely depressed during many of the post-War years, when several of the good mills in India and most mills in Japan pay handsome dividends. While adequate corrections for differences in work can only be estimated, nevertheless the following tables may approximately indicate the usual direct labor costs of certain operations.

It is obvious that the Indian worker is highly inefficient as compared to the workers of other lands. It remains to indicate wherein

[68] *Report of an Investigation on behalf of the United Textile Factory Workers' Association* by J. Hindle and M. Brothers, p. 7.

[69] See *Bombay Labour Gazette*, December 1928, pp. 361–2.

[70] Pearse, *The Cotton Industry of Japan and China*, pp. 72, 142.

[71] *Report of the Indian Tariff Board regarding the Grant of Protection to the Cotton Textile Industry*, 1932, p. 206.

[72] For instance, such studies as Dorothy J. Orchard's "An Analysis of Japan's Cheap Labor," *Political Science Quarterly*, June 1929, and John E. Orchard's *Japan's Economic Position*, McGraw Hill, 1929. If Japan's cotton mill labor is not cheaper than American it seems strange that the industry continues to pay so much better dividends and to capture increasing proportions of world trade.

COMPARATIVE DIRECT LABOR COST OF SPINNING 1 LB. 20's COUNT YARN IN THE UNITED STATES, JAPAN, INDIA AND CHINA (1928 *)

	U. S.	JAPAN	INDIA	CHINA (Japanese Mill)
Spindles per competent spinner	1120	400	175	240
Output of 20's count yarn per spindle per 10 hour day	.370 lb.	.450 lb.	.425 lb.	.429 lb.
Output per spinner per 10 hour day	414.44 lbs.	180 lbs.	74.5 lbs.	102.96 lbs.
Spinner's wage per day	$2.85	0.70	0.315	0.2884
Spinner's wages per pound of yarn produced	0.68	0.388¢	0.422¢	0.2801¢

* Pearse states that the *total* (not direct) labor cost of spinning one pound of 20's yarn is 1¢ less in Japan than in the cheapest countries of Europe (*The Cotton Industry of Japan and China*, 1929, p. 142) and 1¢ less in India than in Lancashire (*The Cotton Industry of India*, 1930, p. 9). A spinning master in India, a Lancashire man, claims that labor cost of spinning in India is only half what it is in Lancashire. *Ibid.*, p. 150.

COMPARATIVE DIRECT LABOR COST OF WEAVING ONE YARD OF PLAIN SHEETING ABOUT 3 YARDS PER POUND (1928) *

	U. S.		JAPAN		INDIA
Width and length of cloth	36 in. × 40 yds.		36 in. × 40 yds.		36 in. × 37½ yds.
Construction	48 × 48		44 × 44		48 × 44
Yarns used	13s and 14s		14s and 15s		14s
Type of loom	Plain	Automatic	Plain	Automatic	Plain
Number looms per weaver	12	40	5.5	20	2
Picks per minute	170	160	180	180	212
Per cent theoretical production	85	90	80	90	80
Cloth per loom per 10 hour day, yards	50	50	54.5	61	64.2
Cloth per weaver per 10 hour day, yards	600	1100	300	732	128.4
Weaver's wage per 10 hour day	$3.80	$3.80	$.84	$.84	$.613
Weaver's wage per yard of cloth woven	.633¢	.19¢	.28¢	.069¢	.479¢

* Looms in India are simpler than in the U. S. or Japan where automatic stop devices and automatic weft replenishing devices are much more common. Automatic looms are new to Japan although they are being used very successfully. The wage figure given for Japanese laborers is high, including a liberal addition of about 50% which the better mills in the country add to wages in the form of housing, food, and other expenses.

A report made to the International Federation gave the following as the numbers of automatic looms tended by one weaver in different countries:

Finland	8 to 12
Norway	12
Germany	6 to 8
Switzerland	12
India	4
England	20

(*Indian Textile Journal*, October, 1929, p. 16.)

Pearse finds labor costs of weaving in Lancashire about 25 per cent more than in India "but the efficiency (perhaps per loom) is 8 to 10 per cent higher and the goods produced are more perfect." *The Cotton Industry of India*, 1930, p. 150.

this inefficiency consists and to suggest some of the chief reasons for it.

An outstanding characteristic of the Indian laborer is his tendency to loiter in the factory. Ordinarily, a reserve force of ten or more per cent must be kept and there is always an idle group in the mill or its yard. Upon the appearance of the manager or a foreman, these men shuffle off as if to get at their work. Inside the mill similar loafing occurs, and when an official appears there the men are hustled off to their tasks with much shouting and threatening from the jobbers. Occasionally a laborer is struck, though the blow is obviously aimed to produce more effect upon the manager who sees it than upon the worker who receives it.

There are many reasons for this habit of loitering. The warm climate, which is largely responsible for the easy-going habits of India, is not conducive to vigorous physical activity. The Indian religious beliefs do not encourage aggressive business activity. Again, when factories worked up to 13, 14, or 15 hours per day, slowness of action became habitual and though hours have been reduced to 10, the habit lingers. Those on time wages loiter more than those on piece. Spinners are nearly always paid by the day and have loitered most, while weavers, who are paid on the basis of output, have been the most regular. One manager found that two young men loitered three hours out of a day of 12 hours and 6 minutes.[73]

A group of mills undertook to introduce a pass system which would allow rest periods in rotation for an average of some 3¾ hours per day of 12 hours and 40 minutes; but the men would not agree, so were allowed to come and go as they liked.[74] In 1908, a Bombay agent investigated the practice of loitering in three mills and found that from five to ten per cent of the hands were out at 8 and 11 A.M. and also at 3 and 5 P.M.[75]

Besides idling for a large fraction of the time on the days when they are nominally working, employees have always been very irregular in daily attendance. In one mill in December, 1906, only 35 per cent were present every day, and 23 per cent were absent four days or more. Some eight or nine per cent of the hands in Bombay Presidency textile mills are now absent every day.[76] More-

[73] *Parl. Papers*, 1909, Cmd. 4519, p. 152.
[74] *Ibid.*, p. 149.
[75] *Ibid.*, pp. 127–8. Evidence of Mr. J. A. Wadia.
[76] Absenteeism in the cotton industry in Bombay Presidency between January, 1930 and April, 1933 was roughly as follows: For Sholapur mills, 15 per cent; for Bombay mills, 10 per cent; for Ahmedabad mills, 4 per cent.

over, through failure to advise the manager of intended absence, they often leave him stranded. When time for starting the machinery arrives there are insufficient hands and the jobbers must literally go out into the highways and all but compel people to come to the mill. If the jobber can find the worker's home, he may go there and rouse the sleeping employee. This is one reason why company houses are so unpopular. Workers prefer to live where the mill foreman cannot find them. The custom long prevailed in some mills, and some cities, of allowing an absentee to send a substitute, or *badli,* who often worked on the ticket of the regular hand, and received his pay when the regular hand had collected his wage from the mill. As the substitute was usually a casual worker, unskilled and neither interested nor reliable, serious difficulties arose which were aggravated when mills began to produce higher grade goods.

Various ways to grapple with this evil of absenteeism have been devised: for example, the *double khada* system, according to which a worker is fined two days' wages for one day's absence without leave. This is looked upon as a penal system and it has rather unfortunate effects upon employer-employee relations.

Mills have to contend not only with these short periods of absenteeism but also with longer periods. At certain seasons, especially in the spring and autumn, which are the busiest seasons on the farms, and also the most popular marriage seasons, workers frequently visit their native villages either to help with their own crops or to work for wages on the fields of others, and to attend caste meetings or family weddings. In a coal-mining village in the Spring of 1923, there were 22 marriages and not a miner at work for six weeks.[77]

Labor turn-over is therefore very high, although perhaps not so high as in earlier days. A large firm of agents in Bombay reported that in the first half of 1906, thirty-eight per cent of the force of over 5,000 hands in one of their mills asked for "leave altogether." [78] The Commission of 1908 [79] found that hands liked to wander from mill to mill and that the entire force tended to change every 18 months. One mill manager reported that "out of 450 one year, only 50 remained in the mill during the second year" [80] while another

[77] *Bombay Labour Gazette,* VI, II, p. 20.
[78] *Parl. Papers,* 1909, Cmd. 4519, p. 60.
[79] *Ibid.,* Cmd. 4292, p. 20.
[80] *Ibid.,* Cmd. 4519, p. 11.

manager found that in his mill, which had 5,331 persons on the roll on January 1, 1907, "between 4,000 and 5,000 hands changed their employment during the year." [81]

Irregularity is nearly as great today. A Calcutta jute mill experienced in 1927 a turnover of about 15 per cent per month, which in June rose to 17 per cent. In only a very few cases do men remain for a life-time in the same factory. In 1927, the writer met two men at a mill in Bombay who had been there since 1864 when the mill started; but these were very rare instances.

Even when at work, moreover, the Indian is little spurred by all the attempts on the part of his employer to increase his production. He refuses to be speeded up, and will undertake to tend only the minimum of machinery. He has also developed little pride in either the quantity or the quality of his output.

Doubtless the Indian climate is partly responsible for the growth of these habits. During much of the year, it is too hot for strenuous, quick motions such as are necessitated by many manufacturing operations, and the speed common in colder areas cannot be expected. Many tasks connected with such industries as metal-working will always be far more exhausting in India than in northern countries. Moisture conditions are also unfavorable throughout the year. The long dry season is unfavorable for the manipulation of textile materials and too hot for effective labor, while the close, damp air of the rainy season is exceedingly enervating.

The Indian worker is also poorly developed physically. The people of most of the many races in India are so small in stature and so fine-boned that mature working men weigh only a little over 100 pounds. Moreover, the standard of living is too low to be conducive to muscular strength or to health. India is only at the dawn of the age of hygiene and is a great breeding-ground for some of mankind's most virulent disease enemies. A government Sanitary Commissioner recently stated: [82]

> Malaria and hook-worm infection are almost certainly the most potent causes of "inefficiency." Both are almost universally prevalent in India; both exercise their malign influence from earliest childhood and seriously interfere with bodily and mental growth and development; both, by undermining the constitution, render the body more prone to infection with

[81] *Ibid.*, p. 367.
[82] *Report of Indian Industrial Commission*, 1916–8, Appendix L, pp. 161–3.

other diseases. . . . In the Madras Presidency little short of 100 per cent of the rural population are infected (with hook-worm). Over 70 per cent of the tea-garden labor forces of Darjeeling are infected, and a similar state of affairs is found to prevail in the plains of Bengal. . . . As regards tuberculosis, . . . there is evidence, . . . that the disease is more prevalent in the large industrial centers than elsewhere; but that the disease is definitely on the increase in rural areas abutting on such centers, from which labor is drawn and to which the victims of the disease go to die . . .

And speaking of the possibilities of improvement through the treatment of these diseases, the same officer added: [83]

There are instances in the tea gardens of Ceylon of the output of the Indian laboring forces having been increased as much as 25 per cent as the result of treatment with vermifuges, and . . . with a lessened prevalence of disease of all kinds. . . . In short, there is ample justification for the dogmatic assertion that eradication of hook-worm infection from Indian industrial forces is certain to be followed by an appreciable increase in general efficiency. . . .

Lack of training and of discipline are two other impediments to efficiency. In acquired skill, the Indian factory laborer is still very backward. Moreover, as a rural villager, he is used to freedom in the matter of hours and resents the imposition of regular, definite time limits on his activities. In some of the small *coir* factories in Travancore men work for two or three annas less per day if permitted to start their looms at will within a half hour rather than on the stroke of some exact moment. This lack of ambition and discipline is, of course, partly due to the worker's physique, the climate, and the still relatively early stage of industrial development in the country, but it has deeper root in the philosophy of poverty which the ages have produced in the country. The typical worker is still wholly untouched by any dreams of economic prosperity.

In some industries the quality of the materials used is another factor affecting efficiency. In general, India uses low grade materials in all her textile industries. This is an indication not only of inefficient but also of cheap labor. The best materials are usually worked up by countries with the most highly skilled laborers and the low grade materials by those having the cheapest labor. The poorer the raw materials, the more labor is required to make relatively poor products out of them; this must be done where labor is

[83] *Ibid.*, p. 161.

cheap. Indian labor is cheap in part because it is unskilled but mainly because of its abundance and its low standard of living.

Out of this plentifulness of labor develops still another important reason why labor efficiency cannot be measured merely by comparing the amount of machinery tended per man. The assumption is often made that each machine *properly* employs a certain number of workers. But this is true in the case of very few machines. The hand-loom has been worked by one, two or three persons, and from one to twelve power-looms and from four to eighty automatic looms are now tended by one weaver. There is no standard number of persons employed in a "standard" cotton mill or in any other factory, and the widest variations are found in the leading western countries.[84] The fact is that the economist's formula of "highest-profit combination" is applied everywhere.

In India, where the rate of interest is higher, where machinery wears out faster, where the extra charge of providing machinery is greater because of packing and shipping charges, and where labor is plentiful and cheap, it is most profitable to utilize much cheap labor in order to force from the dear mechanical equipment as large a product as possible.

The efficiency of Indian labor is low. This together with its plentifulness reduces the output per man to a very low level. On work requiring skill this type of labor is ineffective, but for such coarse products as a country in the early stages of the factory system produces, especially for coarse textiles, it is fairly cheap. The difficulty is to secure changes in efficiency to correspond with increases in wages. Indian labor has had much to contend against in a trying climate, inefficient management, poor materials (especially in cotton) and a low standard of living aggravated by an oversupply of labor and intense competition. In this predicament it has been ignorant, conservative, even obdurate, to a degree. Yet it is slowly improving. Labor in the chief centers of industry will doubtless continue to contend for a higher share of the total product and its standard of living will gradually rise. India still remains, however, notable for its resources of an ample supply of low-priced labor.

[84] In 1928 a good cotton mill in Baden was using about four times the labor used in a similar factory in New Hampshire.

CHAPTER XVII

THE WORKER'S STANDARD OF LIVING

THE elements in the standard of living of Indian factory workers may be classified under the several main heads: housing, food, clothing, education and culture, and welfare work provided by the factories.

Housing. The housing of factory labor varies widely in different parts of the country, between the centers and the suburbs of the large cities, and between the urban areas and the industrialized rural towns. In the northern sections, the rigors of climate make necessary houses of stone, brick, cement or mud. In the south, the land of the palm and pine, much lighter structures are often used. Mud huts are also common here but the more popular material is a thatch of palm leaves. Many shelters are made entirely of a few sticks, thatch and some strips of matting. In regions like Bengal, where rainfall is heavy, shelter is similar to that found throughout the Pacific Islands. While not raised so high above the ground as the Philippine house, the Bengal house resembles it in many other ways. Built of bamboo, it is a flimsy structure but able to withstand rains and floods which would cause a mud house to collapse. It is kept dry by being set on a base two or three feet in height, typically of dirt, but now frequently of stone or cement, and is more airy than the mud houses of the dryer regions. Galvanized iron sheets, effective for roofing and for protecting the sides of mud houses during the monsoons, are becoming an important supplementary building material in most sections.

In all regions the prosperous few have attractive houses of brick, stone or marble, and in the cities there are numerous beautiful buildings, public as well as private. But the masses, both rural and urban, are badly housed. The common rural house costs little but a few days' labor. The mud may be dug in the dry season from the nearby tank (pond). This is not only of advantage to the owner-builder, but also to the community, for in this way the tank is kept deep enough to catch and hold the necessary amount of water from

the rains. The few sticks of wood used on the doors, windows and roof may be taken from the village groves. These are supplemented on the roofs with the leaves of some giant cactus, or palm branches, covered with dirt. If thatch is used, the materials are equally cheap. A thatched house needs occasional repairs, and a mud house loses some of its body during the rains but a little labor restores either of them to its proper condition. The houses of the untouchables in the rural villages are often so offensive that a European, or higher caste Indian, can scarcely bear to go near. They are far more revolting than pigsties because inhabited by human beings. Yet it is from them, not from the typical village houses, that a large proportion of the factory workers come. They cost not over $3 or $4 for cast-off materials, and therefore when the villager becomes a city mill hand he considers rent payment a waste of money.[1]

The larger cities, with their taller and therefore stronger buildings, richer inhabitants and mercantile interests anxious for advertising, have many structures built in more expensive ways. In Bombay, where land is about as scarce as on Manhattan Island, many mill-hands and coolies live in strong, solid houses of several stories. In other places, like Calcutta or Madras, where population is not so concentrated, or in smaller centers, like Ahmedabad and Cawnpore, the laboring class lives in structures more like those in the villages but packed together.

Cotton gins and presses, jute presses and cotton mills are widely scattered in country towns. Coal pits are often in the midst of open fields. In these rural localities many workers live in their own homes, either nearby or in the surrounding villages, up to seven or eight miles away. Others rent houses or quarters closer to the factory. At so large a center as Nagpur (population 145,000) the hands are mainly from the district, and in 1916 fifty-eight per cent of all the hands in a large mill there occupied their own houses. Even Sholapur and Ahmedabad have many elements in common with these less crowded centers, but are becoming, as Cawnpore has already become, so crowded as to necessitate either housing by the mills or more distinctly urban living conditions.

The most primitive conditions found in the villages prevail in these semi-rural centers. Situated in the poorest sections, sur-

[1] "In practice, if it (the village house) is not lived in, it falls to pieces, and is not rented to anyone else. It is in fact *unrentable*." Dr. H. H. Mann quoted in *Census of India*, 1921, VIII, Pt. I, App. W, p. civ.

rounded by filth and lacking in sanitary equipment, the houses at best are usually one room, 10 feet by 10 feet or a little larger, with a small balcony and an enclosed yard or "purdah pasture." A dirt or stone floor is cleaned with cowdung water. The "stove" is a tiny clay furnace with no chimney, made by the housewife herself, and used inside the room which it fills with smoke. Sinks or tubs for washing are unknown, and for the most part there are not even receptacles or arrangements for cleaning and carting sewage away to farms as in China and Japan. This is one of the most filthy, disgusting and unsanitary aspects of Indian rural life carried into the towns; and because of the British government policy "not to interfere with the people's customs" the introduction and use of modern sewers has come very slowly.

Housing conditions in the mining areas approximate still more nearly to those in villages. A large proportion of the laborers in mines are from the less advanced aboriginal tribes, and they have been willing to put up with even worse conditions than the lower class Hindus. Furthermore, the War and post-War boom brought greatly increased numbers to mining communities and resulted in still more crowding, as well as in the hurried construction of very poor quarters.

Two main types of housing are common in the coal areas. In some places, and this is by far the best type, mining companies own or have leased the surface and have furnished the laborers small plots of land on which they are allowed to build houses and to produce a considerable portion of their food. The company usually furnishes the materials and the people put up the structures which are often very good in comparison with most rural housing in India.

Sometimes the companies construct houses, mostly of brick, consisting of a long building about 10 feet in width, roofed one way, and divided into small dwellings 8 or 10 feet across, resembling a line of small connected garages. The floor space is only 80 to 100 square feet and the roofs are low. These are mere shelters in which a few belongings may be locked up and in which a family may exist during non-working hours. Since the entire family commonly goes into the mine, this "home" is perhaps less important.

Great improvement in mine-labor housing has been effected within recent years by Boards of Health organized under government initiative, but consisting of representatives of the govern-

ment, the mine owners and the public. In the Jharria field, for instance, a detailed survey in 1923 [2] showed that 7 per cent of the quarters were "in a ruinous condition" and unfit for habitation. It was found also that of the remaining mine-labor dwellings, 47.4 per cent contained less than 900 cu. ft. of space, *i.e.*, were smaller than 10 feet by 10 feet by 9 feet in height, of which over 20 per cent contained less than 600 cu. ft. This lower 47 per cent of miners' houses in that district was classified as follows:

Between 900 and 700 cu. ft.	7,214	(15.2%)
Between 700 and 600 cu. ft.	5,466	(11.6%)
Between 600 and 500 cu. ft.	5,424	(11.5%)
Between 500 and 400 cu. ft.	2,843	(6.0%)
Under 400 cu. ft.	1,450	(3.1%)
Total	22,397	(47.4%)

By the end of the year 1925–6, partly because many collieries had been closed on account of business depression, the percentage of dwellings under 900 cubic feet had been reduced to 23.3%. Of these the report says, "only 8.8% of the houses now under license are below 700 cubic feet capacity as against 32.2% three years ago." [3]

In the larger towns, housing conditions vary chiefly in being more crowded, more expensive and generally less desirable. In the large cities there are certain sanitary advantages, such as city water—the Indians' way of bathing is to sit under the tap—and city sewage disposal. Though a great boon to the occasional Indian who has learned how to use these conveniences, to the many who have recently arrived from the country, they are either grossly abused or not used at all. Indian hydrant water should never be used unless boiled, and so persistent are the village habits that the streets often remain unspeakably filthy.

In some of the medium-sized towns, such as Cawnpore, mill-owners have erected large blocks of houses for the work-people. This custom began with the plantations, especially the tea estates, where the grant of materials and land was of considerable value. As soon as the jute mills were forced to seek sites outside the Calcutta suburbs, they began to erect these "lines." At first, as on the tea estates, the houses were temporary (*kutcha*), but now most of the jute mills have permanent (*pucca*) lines. Some mill-owners in Cawn-

[2] *Report of the Chairman, Jharria Mines Board of Health,* dated, Aug. 5, 1926, p. 6.

[3] *Ibid.*, p. 7.

pore were the first, among those whose factories are located in cities of considerable size, to build houses for their laborers. The Cawnpore Woolen Mills had built some houses as early as 1902, and by 1908 had 452. At the same time the leather factory in Cawnpore had 900 houses. The woolen mills' houses were 10 by 12 feet, one storey, and each had a court-yard 10 by 6 feet, paved and provided with hydrants. The cost was Rs. 350 where the court was provided, and Rs. 300 where it was not. Rentals were 12 annas and 8 annas respectively per month, considerably below the market rates for similar accommodation. The company had difficulty at first in getting the people to occupy them, but before long they became quite popular.

Jute mill "lines" are well built of brick or cement and frequently surrounded by paved court-yards which can be kept clean with hose-water. In most cases the accommodation is in single-room dwellings in long, one-story buildings, the rooms being built back to back. Usually there is not more than one door and one small window. Because of the extreme modesty and desire for privacy on the part of the Indian woman, even of this class, the windows are likely to be filled up with boards or bricks, or covered over by folds of heavy burlap which exclude nearly all air and light. Because this and other housing available assures the customary privacy of Indian women, only at the expense of all light, air and freedom, few women accompany their husbands to the factories. This is another standard of decency which the workers refuse to surrender.

In some jute mills, practically all the labor is housed in company quarters, while in others a large share is housed in the city itself, depending mainly upon the type of labor and upon the mill's location. If it be labor which has migrated from a distance, housing is likely to be furnished unless the mill is close to a city where quarters may be rented. But for various reasons, laborers from a distance often prefer to rent outside quarters, even though the accommodation be less well kept and less attractive. While not so substantial, these quarters provide more of the elements essential to privacy and respectability. Others object to the restriction on freedom in the company houses; "when they absented themselves . . . the jobber knew exactly where to find them." [4] In one jute mill the

[4] *Parl. Papers*, 1909, Cmd. 4519, p. 73.

superintendent states that 50 per cent of the hands live in villages averaging about three miles distant.

The most extensive housing scheme by a single company, and the best labor housing in India is that of the Tata Iron and Steel Company at Jamshedpur. At Christmas, 1926, the company stated that expenditure on housing alone amounted to about Rs. 9,130,698; and that an additional amount of Rs. 5,117, 914 had been spent on roads, sanitation, water-works, lighting and other municipal activities. Rents on these houses, of which about 4,500 had been built, varied from R. 1 to Rs. 180 per month and brought in about 5 per cent of the capital cost per annum. The houses have an excellent appearance and are provided with water, electric light, and sanitary equipment. Although they also furnish privacy with more freedom for women and are a great boon to the workers, complaints of crowding are heard.

In 1908 a leading jute mill agent stated that their houses paid as an investment.[5] During the War period, however, another mill was losing 2 per cent annually on its housing investment.[6] With increasing costs of construction and of land, it is usually said that the rents do not provide interest and sinking fund. Jute mills often rent quarters to a family at 8 annas (18¢) to 1 rupee (36¢) per month. But rents also run for a family from Rs. 2–8–0 to Rs. 5–0–0 per month. In some cases the rents remain nominal and in many are considerably below the competitive rate. Mills find at times that half the occupants are employed in other mills, and when rentals are high, as they were during the War and post-War period, workers sometimes make money by subletting these houses.[7]

In the larger cities, more especially in Calcutta and Bombay, factory owners generally do not provide housing, though in these cities labor housing is most needed. Hands shift about from mill to mill and it is inconvenient to move each time. Also relatives and mess-mates often work in different mills yet wish to live together. Mill-owners naturally object to housing the hands of other factories. The difficulty is that too many mills are close together. Workers,

[5] *Ibid.*, p. 277.

[6] *Report of the Indian Industrial Commission, Evidence,* IV, pp. 371–2.

[7] The Bombay Industrial Disputes Committee, which was more likely to see peculiarities in the practices of laborers than in those of capitalists, stated that in one mill employees rented from the mill at Rs. 3 and sub-let at Rs. 13 per month. Also that municipal houses which rented at Rs. 1 and Rs. 1–3–0 per month were sub-let at an advance of Rs. 20 per month. *Bombay Labour Gazette,* I, 8, 27.

living outside, rent quarters from private landlords, and because of the high land values, the accommodation is poor.

There are two main types of housing for Bombay hands. One is the *chawl* or storied building and the other, less common, is the *bustee* or crude shed, similar to village housing. The latter are found only in the outskirts and generally in some out of the way gully or dump heap. These may be covered and sided with palm leaves or old flattened preserve cans, which are effective against rain but not against heat. People in these sheds live much as they would in the country except that the greater crowding makes for worse sanitation and more disease.

Buildings of two to four or five stories in height house most of the factory workers. The buildings are crowded together, every possible space inside is devoted to small rooms, and every room is crowded with people. Narrow alleys are lined on either side with four-storied buildings. The alley itself is likely to be filled with children, animals, filth and effluvia, while above, the clothing and belongings of the occupants are hung out to catch the little air and sunlight available.

Everywhere crowding is extreme. From 4 to 7 persons live in one room of, say, 12 feet square, and often more people live in even less space. In 1911, sixty-nine per cent of the total population of Bombay were living in one-room tenements, averaging about 4.5 persons per tenement. In crowded districts the average is far higher. In 1921–2, 97 per cent of the working class families in Bombay were living in one-room tenements, often containing two and even up to eight families per room.[8] In one ward, Sewri, 96 per cent of the population lived in one-room tenements with five persons per room. The table on page 394 compares the tenement situation in Bombay in 1911 and 1921.[9]

In London in 1911 only 6 per cent (as against 69 per cent for Bombay) of the population were in one-room apartments; and the average number of occupants per room was 1.92 as against 4.47 in Bombay.

Indian workers as a rule occupy much less than one room per family and pay very low rent. About 1908, the usual rent was not

[8] G. Findlay Shirras: *Report on an Enquiry into Working-class Budgets in Bombay*, pp. 23, 25.

[9] See *Bombay Labour Gazette*, II, 2, p. 15, and *Census of India*, 1921, IX, Pt. I, Pt. B, p. 18.

over $1.00 per month.[10] An independent investigator in Bombay found in 1918 [11]

HOUSING IN BOMBAY, 1911 AND 1921

CLASS OF TENEMENT BY NUMBER OF ROOMS	PERCENTAGE OF EACH CLASS TO TOTAL TENEMENTS		PERCENTAGE OF OCCUPANTS OF EACH CLASS TO TOTAL POPULATION		AVERAGE NUMBER PERSONS PER ROOM IN EACH CLASS	
	1911	1921	1911	1921	1911	1921
1 room	83	70	69	66	4.47	4.03
2 rooms	10	14	13	14	2.38	2.11
3 rooms	3	7	7	8	1.80	1.60
4 rooms	2	4	4	5	1.54	1.30
5 rooms	1	3	3	4	1.43	1.06
6 rooms and over	1	2	2	3		

that 80 per cent of the employees interviewed lived with their families in one-room tenements. The average number of inmates in such a tenement is 4.5 and the average rent per tenement is Rs. 4 per month.

Overcrowding in Bombay, Ahmedabad and Karachi is shown in the following table.[12]

IN ROOMS WITH	PERCENTAGE OF PERSONS IN		
	Bombay	Ahmedabad	Karachi
10 persons and over	13.7	2.1	15.2
6 to 9 persons	22.1	13.2	32.3
5 persons and under	64.2	84.7	52.5

This shows that over-crowding is not a monopoly of the industrialized districts. Karachi is a commercial rather than a factory town, and commercial centers have always acted as magnets for the poor.

The evils of crowding are various. Finding that they cannot afford to provide a house, tens of thousands of laborers go to the larger centers and remain for months, often years, practically without house or home, and frequently with no possession beyond the clothing they are wearing. Food of a sort can be purchased for a few *pice* in low class eating houses, and at night the shelter of

[10] W. A. Graham Clark in Publications of U. S. Department of Commerce, Special Agents' Series, No. 74, *Linen, Jute, and Hemp, in the United Kingdom*, p. 130.

[11] Indian Industrial Commission, *Evidence*, IV, p. 366.

[12] *Bombay Labour Gazette*, II, 2, p. 15. Constructed from figures of the *Census of India*, 1921.

some projecting eave is sought; the worker lies upon the ground or sidewalk, covers himself with the cloth he has worn by day and sleeps the sleep of the just. He is not worth robbing even where not to steal is to starve, and since the weather is definitely predictable during most of the year, his sleep is seldom disturbed. Sometimes the occupants of large buildings are kindly disposed and allow such men to sleep in doorways or hallways. On leaving an office building whose old-fashioned narrow stairs zig-zagged by short flights and frequent landings about the elevator, I counted 28 men sleeping on landings between the ground and the fourth floors. "The ordinary coolie earned 8 annas a day, arranged for his food and slept on the pathway at night" said a Bombay witness before a government Commission in 1908.[13] Even families sometimes live in a similar fashion.

In some cases a group hires a tenement together, either taking turns cooking the simple meals or keeping a woman to cook for them, or perhaps boarding outside and using the room only to store their few belongings and possibly to sleep in, during inclement weather.

The interiors of dwellings are as simple as the exteriors. Where there is any illumination at all it is from a bit of wick in a little vegetable oil or a tiny tin kerosene lamp with no chimney. Often the only light is from the flame of the dried cow-dung in the little clay furnace. There are no tables or chairs, though occasionally something like a foot-stool is used for a chair. A few pots and pans, formerly of clay, but now frequently of brass and occasionally of aluminum, serve as both cooking utensils and dishes. In a few apartments occupied by Christians, battered chairs, a table and sometimes a lamp and a bed indicate that the owners belong to a separate "caste." In the other rooms perhaps a cheap advertising picture is the only decoration; and lines containing the rag-like clothing of the various members are often hung above the peoples' heads.

A very observing witness before the Industrial Commission which sat during the World War period said: [14]

Although I have observed a good deal of poverty in my walk through life and in many countries, and although I have read a great deal about

[13] *Parl. Papers*, 1909, Cmd. 4519, p. 124.
[14] Mr. A. E. Mirams, *Report of the Indian Industrial Commission, Evidence*, IV, p. 354.

poverty, . . . I did not realize its poignancy and its utter wretchedness until I came to inspect the so-called homes of the poorer working classes of Bombay. . . . [See the laborer] in his home amongst his family, and one instinctively asks oneself, Is this a human being or am I conjuring up some imaginary creature without a soul from the underworld?

In such a room,—10×10 feet—where there is hardly space to move, whole families sleep, breed, cook their food with the aid of pungent cow-dung cakes, and perform all the functions of family life; the common latrines alone being set apart. Some of the rooms so-called in the upper stories of the older houses, are often nothing more than holes beneath the sloping roof, in which a man cannot stand upright. The rear rooms are usually dark and gloomy, and it is only at a closer inspection, when one's eyes have become accustomed to the gloom that the occupants can be seen at all.

The report of an Indian woman doctor, appointed by the government of Bombay to make certain investigations, contains a number of statements bearing upon crowding. Having free access to the interiors of these dwellings, she was able to check up certain matters which the male visitor seldom sees.[15]

In outside *chawls* I have several times verified the overcrowding of rooms. In one room on the second floor of a *chawl,* measuring some 15 × 12 feet, I found six families living. Six separate ovens on the floor proved this statement. On enquiry, I ascertained that the actual number of adults and children living in this room was 30.

Four or five of these poor families, preparing the evening meal in the one room, present a picture never to be forgotten. The women squat at their separate smoking stoves, and the men, often bare except for loin cloths, hold children naked except for a few brass or silver bracelets and anklets; still other children cling to their mother's skirts or sprawl on the floor, while the flickering lights from the fires show in succession grotesque shadows and figures in high relief.

But a family takes not only other human beings into its rooms,

[15] *Bombay Labour Gazette,* II, 1, pp. 31 *et seq.* The report goes on to say that: "Three out of six of the women who lived in this room were shortly expecting to be delivered. All three said they would have the deliveries in Bombay. When I questioned the district nurse who accompanied me, as to how she would arrange for privacy in this room, I was shown a small space, some 3 ft. by 4 ft. which was usually screened off for the purpose. The atmosphere at night of that room, filled with smoke from the six ovens, and other impurities, would certainly physically handicap any woman and infant, both before and after delivery. This was one of many such rooms I saw."

it has animals as well. The Indian villager is accustomed to animals about him and likes to keep them when he moves to town. While they serve as pets, they also provide food. Goats are the most common, furnishing milk for the children, and are often found in corridors, but occasionally dogs and monkeys are stumbled over. The disease-carrying rat is omnipresent, and for religious reasons certain vermin are not killed. To an occidental, the situation is made more shocking by a number of other Indian customs. The crowding and filth are bad enough, but when these are enveloped in the all-pervading odor of burning cow-dung cakes and fresh cow-dung [16] smeared on floors and steps, the result becomes to western nose and eyes almost unbearable. No better example of the difficulty of appreciating an alien culture could well be found. To the Indian these are wholesome domestic odors reminding him that a tasty meal and a well-kept home await him.

For seventy-five years such habitations have served as the dwelling-places of India's factory population. A great British physician recently found no improvement after thirty years.[17] The shelter of casual workers is even more primitive. An official letter from Burma to the Government of India described the housing condition of the Madras coolies, who go to Burma to work in the rice mills, as follows:

> Nothing could be worse than the insanitary condition in which these people are herded together. The mills are built on the banks of the creeks or river, on land reclaimed from swamp, and swamps around them. The nature of the soil, the absence of drainage, the filthy habits of the people, with the unlimited over-crowding, give rise to a state of things which bids defiance to ordinary sanitary provisions, I mean such as are set forth in our Municipal Act. There is often much sickness amongst them from fevers, and cholera and small-pox find amongst them the bulk of their victims. They fill the hospital, swell the death-rates, and render the town unhealthy. They require special sanitary regulations and special supervision.[18]

[16] There apparently is less evil and more actual virtue in cow-dung than our western prejudice allows us to imagine. Indian sericulturists, trained in the most exacting and scientific methods of disease elimination practiced by the Japanese, use this material in a way which would seem to us pernicious, namely, for washing and coating the trays upon which the tiny delicate worms, endangered by several fatal diseases, are allowed to hatch and live until they have matured and spun their cocoons.

[17] Sir Ronald Ross in a Report issued after a four-months' journey in India and Malaya, and reviewed in the *Calcutta Statesman*, June 18, 1927.

[18] *Reports on the Working of the Indian Factory Act, Parl. Papers*, 1889, Paper 124, p. 61.

Housing constitutes doubtless one of the worst aspects of Indian industrialism. The magistrate of Howrah gave evidence to the Factory Labor Commission in 1908 as follows: [19] "The high rate of mortality and disease among coolies in Howrah is, in my opinion, due chiefly to the way in which they crowd and pig together in insanitary huts, in order to save rent charges." And the Bombay Industrial Disputes Committee stated in 1922 that . . .[20] "the heaviest burden which labor has to bear in Bombay arises from the deficiency of housing accommodation and the low quality of much that is available." The report of the woman doctor referred to states that the factories are far more sanitary than the dwellings in which the workers live.[21]

Infant mortality rates in Bombay show a direct and shocking correlation with house-room. In 1920, 1921, and 1927 they were as follows: [22]

Dwelling Place	Infant Mortality per 1000 Births Registered in Tenements		
	1920	1921	1927
1 room and under	631.1	828.5	490
Roadside	400.0	484.5	
Hospitals	308.9	189.6	88
2 rooms	304.0	321.9	203
3 rooms	295.1	191.4	222
4 or more rooms	289.5	133.3	195
Rate for the city	552.2	666.7	316

In 1927 while the one room tenements of Bombay provided 53.6 per cent of the total births in the city, 83 per cent of the first year deaths also occurred in them. In 1921 the figures were far worse, but probably the records are not reliable.

Since many women go to the country for the birth of their children, taking them back to Bombay "to die," the total "corrected" [23] figure for 1920 should be 404, and for 1921, 510. It is not known what share of these totals should be credited to the one-room tenements, but even if the entire discrepancy were so

[19] *Parl. Papers*, 1909, Cmd. 4519, p. 233.
[20] Report, in *Bombay Labour Gazette*, I, No. 8, p. 27.
[21] *Ibid.*, II, No. 1, p. 31.
[22] The *Annual Reports of the Executive Health Officer for Bombay.* Government of Bombay to Royal Commission on Labour in India, 1931, *Evidence*, I, Pt. 1, p. 26. (For the 1927 figures.)
[23] This figure is usually one-third to one-half less than the regular figure.

credited the rate in such rooms would still be nearly ten times the rate for New York City in the same year. The "corrected" infant death rate for Bombay for 1926 was only 255, just half that of 1921.

Although still very bad, the housing situation is gradually being improved. The boom period led to greater crowding, but also to awakened interest in the problem. In all the large cities, Improvement Trusts are slowly effecting progress in town-planning and housing. The existence of some corruption has led to the sneer that "they never improved anything and nobody trusts them," but this is by no means wholly justified. They have accomplished much for both Bombay and Calcutta, and the fact that much remains to be done is due to the magnitude of the task in the beginning.

The government of Bombay Presidency launched an elaborate scheme of labor housing during the post-War prosperity. It was calculated that Bombay lacked housing for some 150,000 people and a plan was drawn up for erecting 625 *chawls,* each containing 80 tenements, or 50,000 tenements in all, to be built over a period of eight years. The scheme turned out a fiasco and only 200 buildings, with 16,000 tenements in all, were constructed. Unfortunately, workers did not take to them and only one-third are occupied in spite of the rental having been lowered far below that which the cost of construction would justify. They are now something like a "herd of white elephants" on the hands of the government.

Expenditure for house rent in India averages less in proportion to the incomes of factory hands than in most countries, though in Bombay City it is about double the percentage which prevails in the rural districts. Findlay Shirras found the rate from 2,473 budgets in Bombay City to be 7.7 per cent of total income. While not the lowest, this is near the bottom of a long series of figures for various countries.[24] The most common rental paid in Bombay was Rs. 3–12–0 (about $1.25) a month.

The unfortunate housing situation is due largely to poverty, ignorant custom and immigrant labor. The villagers tend to follow the age-old customs which grew up among a wretchedly poor people on the sun-burned plains during the past era, and which are unsuited to the great damp, crowded cities where most of the factories

[24] *Report on an Enquiry into Working Class Budgets in Bombay,* 1923, pp. 106 *et seq.* A very illuminating collection of figures for international comparison.

have been built. The records of disease and mortality reveal the results. In such dwellings no one could live permanently. New laborers, equally ignorant of the necessities of city life, are always being drawn from the villages and the bad housing remains. It is a vicious circle which despite efforts at improvement has not yet been broken.

Food. The diet of Indians is lighter in respect of both amount and kind than that of Europeans and Americans—or indeed of other Asiatics, especially the Chinese—apparently because of the warm climate, their less strenuous habits of living and working, their smaller physique, and their poverty. Whereas Europeans and Chinese eat meat, most Indians are vegetarians and derive a small amount of protein from pulses, milk and vegetable oils. Only among the lower classes of the Hindu population is meat eaten, though the Mohammedans (about one-fourth the total population) eat it freely. Even the Mohammedan has religious scruples against eating the cheapest kind of meat—pork—which is the main stand-by of the Chinese. The principal meat consumed is goat meat; in some sections, especially in Burma, fish is a constituent of the diet. In China, as the small farms and hand methods do not provide grazing areas, domestic animals must be those which can live on refuse, and in confinement. The pig and the chicken can turn the most loathsome waste into nourishing food, and both are great boons to the Chinese. In India, where agriculture is more extensive, and especially where pastures are poor and food must be gathered from wider areas, the goat is a more economical animal than the pig. Though the Indian pig is long and "rangy," like the American "razor-back," as a traveller in search of food he is no match for the goat. The goat eats everything the pig eats and is able to travel and climb for a further margin.

Before coming to the city, many of the factory hands are accustomed to receive a considerable share of their food in the form of "left-overs" from their employers' tables. Until recently many ate the flesh of dead animals whose skins they were allowed by long custom to remove and use. In the less busy seasons a man commonly works for a farmer merely in return for his meals; this supply of low-grade food constitutes the rural worker's principal income.

Indians generally eat only two meals a day. The most common

practice is in the early morning to take either nothing or a very light breakfast, such as a cold *chowpatty* (similar to a pancake though baked harder), and to eat a fairly good meal at 9 or 10 A.M. At noon or in the afternoon, another very small amount may be taken, but often this is omitted and the next meal is rather late at night, after the day's work is completed.

The food consists mainly of cereals, the particular grain varying with the district from which the worker comes and the district in which he is working. The best and most expensive grain is rice, while *jowar, bajra,* wheat and *patni* are also widely used. In Bengal, rice is the common food as it is in Bombay. On the other hand, Sholapur, in an upland plain, producing large quantities of *jowar,* depends practically wholly on the seed of that sorghum-like plant. In all districts a large amount of pulses (chief of which is *gram*) is eaten.

Both agricultural and factory workers consume less than is required for the maintenance of health and vigor. The difference in the physical appearance in India—as in China and Japan—of those with sufficiently high incomes to buy good food and those with less is noticeable.

The most precise studies into food consumption of workers in India have been made by the Bombay Labor Office. Its investigation of 2,473 family budgets showed that the average adult male worker consumed less of almost every commodity than is prescribed by the Bombay Famine Code or for the inmates of Bombay jails.

The figures are as follows: [25]

Articles in 2473 Family Budgets of Working-Class Families in Bombay	Daily Consumption per Adult Male			
	Bombay Jails		Bombay Famine Code	
	Hard Labor	Light Labor	Diggers	Non-working Dependents
	lbs.	*lbs.*	*lbs.*	*lbs.*
Cereals	1.29	1.5	1.38	1.29	0.86
Pulses	.09	.27	.21	——	——
Beef and Mutton	.03	.04	.04	——	——
Salt	.04	.03	.03	figures not available	——
Oils	.02	.03	.03	——	——
Others	.07	——	——	——	——
	1.54	1.87	1.69		

[25] *Report on an Enquiry into Working-Class Budgets in Bombay,* 1923, pp. 19–20.

Since jail fare and famine rations are generally considered to be near the minimum of subsistence, it is evident that the worker is actually at that margin. However, careful calculations, made after the above mentioned study, showed that in calories the extras in the way of cheap sweetmeats and fruit which a worker consumed during the course of the day were equivalent to about 4.6 per cent of the food balance shown in the table, leaving the famine refugee ration for light work about six per cent above the normal ration of the adult male worker.[26]

The following table shows a steady rise in weight of food consumed with rise in income.[27]

DAILY CONSUMPTION OF FOOD IN POUNDS FOR VARIOUS INCOME GROUPS

FAMILY INCOME GROUP	NUMBER OF BUDGETS	AVERAGE NUMBER PERSONS IN FAMILY	PER CAPITA	PER ADULT MALE
			lbs.	*lbs.*
Below Rs. 30	37	3.7	1.02	1.24
Rs. 30–40	240	3.9	1.17	1.45
Rs. 40–50	555	3.9	1.28	1.57
Rs. 50–60	496	4.2	1.34	1.63
Rs. 60–70	420	4.3	1.37	1.70
Rs. 70–80	150	4.8	1.43	1.79
Rs. 80–90	62	4.9	1.45	1.81
Rs. 90 and over	38	5.0	1.61	2.01

The striking fact in this table is that a man earning less than Rs. 30 consumes only five eighths as much as a man earning Rs. 90 or more. Probably his food is also of a poorer quality.

The same authority has compared the results of the Bombay study with those of similar studies made in other countries. In only a few places does a larger share of the total expenditure go for food. In the United States in 1914 this share was 49.3 per cent while in Bombay it was 68.7 per cent.

Except that the development of railways has provided transport and hence has removed the great danger of famine, the development of modern industry seems to have had comparatively little effect upon the amount or quality of food consumed by the Indian workers.

Clothing. Indian clothing is scanty. In most parts of the coun-

[26] *Bombay Labour Gazette*, April, 1925, pp. 841–2.

[27] Adapted from *Report on an Enquiry into Working Class Budgets in Bombay*, 1923, Table X, pp. 78–9.

try during most of the year it is worn merely for decency, not for protection. For the laboring classes, it consists usually of the coarsest, cheapest cotton goods. The most common article of dress is a plain strip of cloth, about 40 inches wide and from 3 to 9 yards long. For the men this cloth is the *dhuti,* worn instead of trousers. Wrapped about the waist and secured by a cord, it is arranged to suit the activity in which the wearer plans to engage. By a simple twist of the wrist it becomes skirt, apron, Oxford bags, skin-tights, plus-fours, knickers, shorts, or loin-cloth; and if need demands it may be used as a receptacle for carrying all sorts of produce, and finally as a coverlet at night.

A man may or may not wear other garments with the *dhuti,* depending upon his social and economic position and the weather. Generally, some upper cloth, shirt, coat, or shawl, is worn, especially in cool weather; also a cap, and more and more men who can afford it are wearing cheap shoes. Factory hands are nearly always bare-footed.

For women the single cloth, called a *sari,* constitutes in some sections, like Bengal, the entire outer garment. It is wrapped about the waist to form a skirt and draped about the shoulders, and over the head. Among the more well-to-do it is a remarkably beautiful and graceful costume. In most sections a short bodice of the same material, covering shoulders and breasts, is worn. Mohammedans dress differently, the men usually wearing something akin to shirt and pajama trousers, often a plaid skirt cloth, and women either a pajama suit or a jacket and wide-flowing skirt. Being kept more in seclusion, Mohammedan women are often completely covered by the *boorka,* an ugly, ghostly, sheet-like affair, with bits of screen for the eyes.

Children usually wear very little clothing, generally none except on "dress occasions." All wear bracelets and anklets, perhaps nose rings, while a child whose parents are wealthy or fond of display, may wear as a girdle a large-linked silver chain. As they grow older small boys wear a loin cloth and little girls assume the garb of young women.

The average annual cotton cloth consumption per capita for the country as a whole for certain years has been as follows: [28]

[28] *Report of the Indian Tariff Board Cotton Textile Enquiry,* 1927, I, pp. 238–9, and *Review of the Trade of India, 1932–33,* p. 34.

CONSUMPTION OF COTTON PIECE-GOODS PER CAPITA PER ANNUM IN INDIA AS A WHOLE

YEAR	YARDS	YEAR	YARDS
1899–1900	11.10	1926–1927	11.31
1905–1906	13.21	1927–1928	12.11
1910–1911	12.71	1928–1929	10.58
1913–1914	16.28	1929–1930	12.04
1915–1916	13.27	1930–1931	9.49
1919–1920	8.80	1931–1932	10.40
1920–1921	12.42	1932–1933	11.94
1925–1926	13.99		

This shows considerable fluctuation but indicates a meagre absolute standard. Almost no tailoring is done and much of the plain white cloth is worn out unbleached. As an example of the difference between the consumption of the rich and the average, a mill-owner stated that he, himself, used probably 500 yards annually.[29]

In the north and northwest a small amount of woolen goods is worn by people who can afford it, but the laborers in the great industrialized districts are dressed entirely in cotton. Urban people wear more clothing than do the villagers and the factory hands probably consume the average for the country as a whole—two cotton suits per year. Even for the very mild climate of India this is insufficient. The average annual consumption of cloth in the United States is about 75 square yards per capita of woven cotton goods besides the quantities of woolen, silk and rayon fabrics.

The average monthly expenditure for clothing and bedding of 539 Bombay working-class families, with incomes averaging a little above those of mill hands, was in 1923, Rs. 4–14–0. The sum spent on clothing rose steadily with larger monthly incomes. For persons with incomes of less than Rs. 30 per month it was Rs. 2–9–10, rising for each successive group to Rs. 8–8–2 for those receiving Rs. 90 and over per month. The proportions of total expenditure for clothing varied little, being 9.1 per cent in the lowest case and 10.1 per cent in the highest. In the group into which most mill hands fall it was 9.9 per cent.[30]

Education; Culture. If the worker's clothing, housing and food are meagre, his opportunities for education, even for recreation, are still less adequate. A very small proportion of them are able to read and write in any language. In 1921 only seven per cent of

[29] *Report of the Indian Tariff Board, Cotton Textile Enquiry*, 1927, IV, p. 80.
[30] *Report on an Enquiry into Working Class Budgets in Bombay*, 1923, pp. 92–3.

the total population of India was considered even literate and among the factory labor classes the percentage was much lower still. Literacy among some of the castes most prominent in the factories is shown by the following figures: [31]

	LITERATE
Bombay Presidency:	
Marathas	3. per cent
Mahar, Holiyas and Dheds	1.5 per cent
Chamars	1. per cent
Kunbis	0.5 per cent
Bhils	0.2 per cent
Bihar and Orissa:	
Santals	0.4 per cent
United Provinces:	
Chamars	0.12 per cent

Even where the government or some other agency has provided schools, the lower classes have generally kept away. They lacked interest, economic surplus and initiative, and they had to contend with strong opposition from the "upper classes" who would not agree to the association of their children with the children of the "untouchables." In only two oriental countries has education made appreciable advance. In the Philippines an ill-adapted English education has been given, while in Japan a government of the same race and culture as the people has achieved considerable success in education. In neither case was the economic, racial, cultural, or political situation nearly so difficult as in India.

For many years there has been talk of establishing schools in factories where those who worked half time could be educated. In a few cases, notably in one group of mills in Madras, the schools have been a marked success, but generally they have been poor because neither the employers nor the employees were sufficiently interested. Children of 9 to 14 who had worked a half day were not in condition for study. Also children were often taken from the school and put to work outside their shift periods. As one manager said in 1908: [32]

> Jobbers will take half-timers to work as full-timers in spite of all precautions, when the supply of hands is short, when fever and small-pox are raging, and, most of all, when the marriage season commences.

It was and is common to blame everything on the jobber. Although he is responsiole for much malpractice, managers usually know what is being done.

The government never required mill-owners to provide schools,

[31] *Census of India*, 1921, I, Pt. 2, Table IX.
[32] *Parl. Papers*, 1909, Cmd. 4519, p. 84.

but officials sometimes requested it. The representative of the Bombay Mill-owners' Association made the following statement before the Industrial Commission in 1919: [33]

> Q. Is there any serious attempt made to educate half-timers?
> A. I do not think so. I think there is no serious attempt. The government by means of their Collector asked the mills to start schools for half-timers. They complied with that request in a half-hearted manner, but the half-timers are not deriving any benefit from it, because, first of all, they serve in the mill for a very limited period, and if they do not get their full time ticket, they go to another mill and try to get a full time ticket.

In some cases bogus schools were maintained merely to keep the children on the ground where they could be worked if necessary.[34] Upon his regular visit, one inspector found a school full of pupils but on a surprise visit the following day all the children were working in the mill.[35]

Even when a modicum of "the three R's" is provided to Indian children, it is likely to be lost through sheer indifference or by disuse. Literacy requires environment—an interest in reading and access to reading matter suited to the attainments and interests of the individual.

Some of the best work in the education of the lower classes along mechanical lines has been done by Christian missions. Usually the students are not children of mill hands but they are from the same village groups and may be expected to furnish labor for industries. Most Christian converts have been from classes lacking in economic opportunity and not above mechanical work. Having had almost no place in the old society and having taken up with a new *sect* they are willing to change work where a caste-man would not. Furthermore, in very many cases it is practically necessary for the missionary to secure a new economic opportunity for a convert if he is to effect any real change in his outlook and conduct. Coming from the countries of machinery, often owning at least a Ford car, and sometimes possessing themselves, or being able to secure teachers possessing, first-rate mechanical ability, some missionaries have built up useful industrial schools. The government has often helped rather generously in securing equipment. Especially in the

[33] Indian Industrial Commission, *Evidence*, IV, p. 9.
[34] See Evidence of a Bombay Collector, in *Parl. Papers*, 1909, Cmd. 4519, p. 152.
[35] *Ibid.*, p. 48.

south of India and in the northwest these schools are numerous. Their greatest difficulty is in the backward position of their students. A few Brahmans are coming into these and other institutions and where they do the results are usually good.

Adult education is scarcely undertaken at all. On this subject representatives of the chief Indian businessmen's association in Bombay made the following statement: [36]

> Q. What has been done in any industry of which you have had experience to improve the laborer's efficiency and skill?
>
> A. . . . The laborers now have really no opportunity whatever of improving their efficiency or circumstances. In the first place, the books are written in English; they have nothing in the vernacular by which they can study.

The Locomotive and Carriage Superintendent of a large railway gave similar evidence and quoted the Principal of a technical institute as of the same opinion. He himself said [37] concerning the branches of mechanical engineering: "At present there is no means for Gujerati-speaking men to understand the principles of these different subjects."

Higher technical schools have been founded but they are not popular. Indian youth are not yet enthusiastic about a mechanical career and much prefer a degree in Arts or Law and a clerkship. Technical institutions tend to be filled up with boys of the lower, less ambitious and less able classes.

The government might be expected to make arrangements for sending young men to England where they could study both the theory and the practice of factory organization and technique, but very little has been done. In 1918, about 100 students had gone, about 60 of whom had returned. It was agreed, furthermore, that in the United Kingdom, the men found it difficult to obtain entrance to factories where they might learn practical methods. Members of the Industrial Commission, especially the British members, seemed to think such entrance almost impossible. The Japanese have been much more successful in this. One of their most effective policies has been to send young men into the factories and shipyards of industrial countries. When placing an order for cotton machinery, a ship, or other industrial equipment, it has been cus-

[36] Indian Industrial Commission, *Evidence*, IV, p. 181.
[37] *Ibid.*, p. 225.

tomary to stipulate that opportunities be found for a few young men. And the opportunities were found. India has purchased much more factory, railway, and other industrial equipment from England than has Japan, and probably could, without much difficulty, have secured similar advantages.

In respect of culture factory workers are naturally deficient. Oppressed by both physical and social factors, they have developed a set of ideas revolving about man's primitive desires for food and sex expression. The term "depressed classes" is applicable. They are, above all, ignorant and superstitious, yet running through their superstitions there are many ideas based upon an appreciation of some of man's greatest problems, often couched in extremely interesting folk-tales.

On the whole, the religious ideas of the people are extremely crude. Mohammedan workers are even less educated than Hindus, but their religious beliefs are more definite and, perhaps, more practical. They have a vigorous monotheism, no idolatry, and absolute certainty that their own religion is true and all others false. The idea of brotherhood in the Faith is undoubtedly a great force among them. The humblest worker answers the call to prayer in ordinary clothes as does the richest factory owner and they kneel on adjoining slabs. Mosque congregations are not determined by income and expenditure.

The lower class Hindus and semi-hinduized aboriginal tribes who furnish the factory and mine laborers have generally less definite religious ideas. The objects of their worship or fear are likely to be such monsters as the blood-thirsty *Kali;* or they may worship at an enshrined representation of the phallic organs. In all these cases, however, the result is not so bad as it is painted. Hinduism is a mild and kindly religion, which stresses mercy, humility and relativity, rather than absolutism and the severe aspects of justice and punishment. Among these "lower orders" it retains, most prominently, the idea and practice of blood sacrifice. Out of the nomadic customs of the people of southwestern Asia grew the idea, as old as Cain and Abel, that a bloody, animal sacrifice was more pleasing and effective than any other.

Sacrifice takes on surprising forms in some of the religious festivals celebrated by the factory hands. In western countries workers often found it difficult to have the same respect for power-

driven machinery which they had formerly felt for the hand tools. Machinery was often smashed in England. In spite of the great veneration for old practices and traditions, this violent phase has not appeared in India. The *Diwali* festival in the autumn is a sort of Thanksgiving period at which the farmer decorates his bullocks with paint and flowers, and every pious Hindu festoons and offers a sort of prayer to that from which he draws his living. The carpenter washes his tools, arranges them in proper order, decorates them and offers thanks for the past and petition for the future. To what extent this is addressed to the tools themselves and to what extent to the "soul of things" behind the tools depends upon the mental outlook of the individual.

The factory hand does the same with the machine on which he is engaged; and as this is a time for joyous celebration, the power-driven machinery admits of interesting arrangements. The factory management allows elaborate decoration and all sorts of crude mechanical toys are made and operated with little belts from the machinery. It is an amusing and wholesome custom.

In some of the jute mills near Calcutta, the mechanics often sacrifice goats at this time. A separate altar is erected by the mechanics of each of the four or five departments in the mill. Various tools and other emblems of their work are placed upon it, together with heaps of sweetmeats and decorations. Incense is burned during an entire day and, while all are careful to see that nothing catches fire, the buildings are effectively filled with smoke. Towards evening a male goat is thoroughly washed, decorated with proper colors and flowers and prepared for a parade and final sacrifice. The little procession, made up principally of the goat and a band, then marches through the grounds and up and down the aisles of the department to the altar. The animal is fed as many sweets as he will accept, and is then decapitated at one stroke by a long knife or sword. With proper ceremony the head is deposited in the river, in this case in one of the mouths of the sacred Ganges, while the meat is retained for a feast in the evening. Thus does the nomad theology function among the industrial workers of India. The factory and the power-machine have been readily adopted and given due place in religious ceremony.

The moral standards of the workers are simple and their deficiencies are rather those of cunning than of malice. The jobber

takes commission from the workers, from immemorial custom, and where all relations are personal and there are too few jobs to go around, it is easily understandable. But this form of bribery is being gradually eliminated by the more impersonal and more standardized relations of the factory.

Pleasures are coarse. Women in factories are assumed to have bad characters. The old-fashioned Indian ideas as to widow-remarriage has an unforunate effect. Many a woman who was technically married when a little girl has never seen her husband, much less lived with him, because the boy died before reaching manhood. Yet, according to the old Hindu ideas, the woman cannot re-marry. Among poor people unable to provide diversion or protection, a number of these women "go bad," and while themselves working, live as temporary mistresses of factory hands or others, especially in great industrial centers like Calcutta and Bombay in whose population the number of women is only about half that of men.

Drinking, which has been especially common among certain groups, appears to be increasing, and is most serious among industrial workers. While upper class Hindus and Mohammedans oppose the use of liquor on religious grounds, the government has introduced the customs of the United Kingdom, and there are numerous liquor shops of various kinds. In various provinces there are strong prohibition movements, but these are nearly always defeated by the government on grounds of revenue. Mr. Gandhi's followers have conducted a boycott of the liquor, as well as of the cloth shops.

A recent labor officer says that "grog" is still one of the staples of the miner, and that he must have his week-end drunk.[38] Thirty years ago colliers were called "the great patrons of the liquor shop." [39] Drinking is perhaps most prevalent among the coal miners of Bengal who are largely composed of *santals*. Some Scottish managers are really worried lest this supply of burly diggers be utterly destroyed by drink. Besides spending most of their wages upon it, these men lower their efficiency, reduce their working time and cut short their working lives.

Drinking is also a great evil among textile workers, especially among cotton mill hands in Bombay and the urban jute mills in

[38] Gilchrist, *Wages and Profit-Sharing*, p. 312.

[39] Skrine, *Memorandum on the Material Condition of the Lower Orders in Bengal*, 1881–82 to 1891–92, p. 33.

Calcutta. Among handicraftsmen it is also common, especially in Surat, where urban hand-loom weavers wage a losing battle but manage to consume enormous quantities of country liquor—usually *toddy,* the fermented sap of the palm tree.

Occasionally factory hands have developed into really bad characters, and have turned to *dacoity,* which is something like brigandage. It might be expected that workers, having broken with their past surrounding and friends, would degenerate far more than is actually the case under the depressing urban conditions in which they live. Danger of moral disintegration occurs where the tie which binds the worker to his village has been most completely severed. But for the most part they remain associated with some of their own caste group and retain a connection with the moral standards of the ancestral village.

Welfare Work in Indian Factories. In nearly all cases welfare work in Indian factories is a new departure, growing out of the War, the post-War prosperity and the resultant labor unrest. There are a few examples of earlier attempts, the most conspicuous being at Cawnpore and Madras, but they were on fairly modest lines. Welfare work, like wages, must be considered in relation to the standard of living in the country, but judged by any standard, it has progressed little in India.

The most nearly universal service performed is medical, but it is only in the large factories. This is often of the simplest kind and in the hands of a poorly paid and poorly trained young Indian "doctor." In most cases a small dispensary is set up in an unattractive and inexpensive room where simple medicines are on hand for treating the common diseases and minor accidents to which the mill-hand is liable. This is usually given free to the hands and their families, though sometimes medicines are sold at cost.

In one large American-owned jute mill—the *Angus*—a European physician of fine skill and training is in charge and excellent work is done. Here the manager did not hesitate to submit to a very delicate operation by the mill physician. Some expensive equipment has been installed and major operations are undertaken with success. The service is not only free to the employees and their families but to all and sundry of the community, who come by the thousands. Of fifty-eight mills working in Ahmedabad in 1925, fifteen were reported to be maintaining well-conducted dispensaries with an

average daily attendance ranging between thirty and one hundred.[40]

Several mills attempt to look after maternity cases and some progress has been achieved. But the women are so ignorant, conservative and superstitious that they avail themselves of this service only slowly and reluctantly. A woman who has given birth to a child is unclean, and no member of her family will approach her "until her days of cleansing are accomplished." Although this practice, together with the lack of proper sanitation, greatly increases the dangers of childbirth, the crude and immemorial customs of the midwives and relatives based on religious superstition are very hard to up-root.[41] The death of a child may be attributed to the use of soap, or some new-fangled product not specified in the Hindu Scriptures. It is easy to see why the maternity department is frequently boycotted. But in a few places, confidence has been gradually established. One of the best examples is in a cotton mill at Ahmedabad, where a prosperous mill has a very intelligent managing agent who has put the medical work in the hands of a good Indian physician. A large house adjoining the mill compound and overlooking the river has been converted into a fairly good hospital, with a large maternity ward.

A few *crêches,* where mothers working in the mill may leave their children, are also provided, but the majority of the mills in this respect are poorly equipped. One of the largest is maintained by the Ahmedabad mill just mentioned. Eighty small babies may be kept there under good care. It is becoming a sort of fad for mills to operate one of these *crêches,* and frequently the manager with 6,000 or 7,000 employees takes evident pride in conducting a visitor to a meagre room housing fifteen or twenty babies. An Indian nurse is usually in charge, and the children are kindly, and often intelligently, cared for. Generally they are bathed upon arrival in the morning and put into clean clothes supplied by the mill. Wholesome food and simple medical attention are furnished and the mothers come to nurse them and often to keep them under their

[40] *Report of the Ahmedabad Textile Labor Union,* 1925, p. 23.

[41] While the writer cannot speak from direct observation he believes from his knowledge of other Indian customs that the horrifying descriptions given in Mayo's *Mother India,* especially in the chapter of the same title, are overdrawn or unrepresentative. In fact, it is interesting that of the pictures of Indian women contained in that book, not one shows other than a fine, fully developed, graceful figure, such as travellers to India for centuries have mentioned in admiration. But the accounts in the text are outdone only by Milton's revolting imaginings about the mother of Satan in *Paradise Lost.*

own charge during the noon hour. Of fifty-eight mills actually working in Ahmedabad in 1925 (forty-eight of which showed average dividends of 14 11/32 per cent) thirteen were maintaining "fairly decent *crêches*, of which about eight supply milk and clothes free to the babies." [42]

In a number of cases schools are provided for children of mill-hands. I saw only one, and that in Madras, which was well equipped, or made interesting and attractive to the pupils. Usually the work is routine and covers only the rudiments of the three R's. The fault is not by any means always with the mills as the parents of the children do not even know what education is. Teachers are often of the very poorest sort. One mill has put a considerable sum of money into school work and has turned it over to the Y.M.C.A. The schools of the Binny mills in Madras are notable. An attempt is here made to employ new hands only from those who have passed through the mill schools, and it is stated that the expenditure has been profitable. These mills have brought trained teachers from England and have made a strenuous effort to make a good, permanent school.

A few outside organizations have also started welfare work in the stricter sense. The Y.M.C.A. first undertook welfare work in Bombay, by offering a variety of educational and recreational opportunities under the direction of a man and his wife, both experts in the field. These people, Mr. and Mrs. Ward of the American contingent, later did similar work in Calcutta. A group of Bombay Indian women has become interested in related work and the attitude of the community is encouraging. One of these women, a daughter of one of the great Christian leaders in India, has gone to England and prepared specially for social service. A number of women representing various creeds have been gathered under her leadership and find in this activity a common basis of interest and occupation. While in Japan the newer Christian community tends to take the lead in welfare work, this is not generally the case in India, where ladies from the Hindu and Mohammedan upper classes have led in social efforts of this kind. The difference arises in part from the fact that in India the Christian converts have been drawn much more from the submerged classes,[43] while in Japan the

[42] *Report of the Ahmedabad Textile Labour Union*, 1925, p. 23.

[43] A few decades ago there was a mass movement of these people into Christianity, but their life went on much as before. Many missionaries now feel this to have been

Christian movement has been among an abler, wealthier, and more self-respecting group.

The most extensive and best organized, as well as the most intelligent, welfare work in India is that conducted by the Textile Labor Union of Ahmedabad. A very able and courageous woman of the Jain sect started independent work, mainly educational, among the children of the mill workers. This was later extended and the work finally resulted in extensive trade union activities. The union was conducting, at the end of 1925, two dispensaries and one hospital which had treated 9141 out-patients and had admitted 170 new in-patients, while 71 major operations had been performed during the year. It was also conducting nine day-schools and fifteen night-schools. Of seventy-eight teachers, forty-three were especially trained. The annual cost of the educational work carried on by this union of "coolies" was Rs. 26,644 or nearly $10,000, a considerable sum for workers whose average income is about one-tenth that of textile workers in the United States. The Union also maintained a reading-room and library, published a weekly paper, furnished legal aid to workers, sold them cheap grain and arranged loans at especially low rates of interest. At the end of 1925 Rs. 19,528 ($7,030) were out on loan at 6¼ per cent interest. Fifty-five per cent of this amount had been used to redeem old debts bearing from 75 to 120 per cent interest per annum. The Union also conducts a savings bank and is engaged in various other enterprises for the welfare of the work-people. Its work for temperance has also been notable. Its leaders have shown exceptional understanding of the laborer and his problems and great credit is due for both the welfare services [44] and the "fighting" work which they have conducted. Recently the union has initiated an elaborate housing venture.

The reason more welfare work has not been undertaken by the mills is undoubtedly to be found in the large labor supply. Welfare work is expensive, and when a mill is paying competitive wages and has hundreds of men outside its gates looking for work, it feels no economic, nor until recently, any social, pressure for such expenditure. In recent years labor's more independent position has brought

a mistake and advocate more intensive work in smaller numbers. The great trouble is that a convert expects, and almost requires, a new job, in order to get him out of his old environment. Where "conversion" is wholesale, the social and economic surroundings are so little changed that the result is often almost negligible.

[44] See Royal Commission on Labour in India, 1931, *Evidence*, Vol. I, Pt. I, pp. 43–4.

increased presssure to bear, and those concerns which pioneered have been given a pleasing amount of publicity. The leaders are assumed to be "very good men." This has somewhat greater appeal in a British country where industrialists may aspire to the social recognition implied in knighthood. Perhaps the rise of labor governments in England has made these "friends of Labor" a little more plentiful and a little more anxious for their "good works" to be known. It is being discovered that expenditure on welfare work brings returns to both companies and individuals.

It should be remembered, too, that lack of social service on the part of the community at large does not mean the same in the Orient as, for instance, in America. In one sense, the East does much more for others; in another, it does much less. An American may turn his brother out of doors but give a fortune to charity, while an Indian or Chinese would support all his relatives and give nothing to the public. After the great 1923 earthquake in Tokyo a missionary collected nearly a hundred orphans and decided to start an orphanage; but within a week all had been claimed and taken by relatives. The old family and caste solidarity placed everyone in some group and only lately have individuals been so scattered that they could not receive succor from that group. In India loyalty is still to the family rather than to the larger social group. But this idea has come through from England and a few of the new Indian industrialists have made handsome gifts to their communities. As the smaller social and economic groups are being merged in larger ones, philanthropy is also being organized on a larger scale.

CHAPTER XVIII

THE LABOR MOVEMENT

IT is not known when the first strike of the entire laboring force in an Indian factory occurred, but from the beginning there were loosely organized refusals to work. Just before his death in 1927, Sir Benzonji Mehta, long manager of the Empress Mills at Nagpur, told how his first weavers in 1877 struck in a body because of a misunderstanding about wage rates. Since that time, frequent disagreements have arisen, many of which have been marked more by such ill-temper as is expressed in the throwing of a weaver's shuttle through a window than by considered demands. Such a strike usually involved only one jobber (foreman) and the dozen men under him, but occasionally it affected an entire department.

The jobber in an Indian textile mill is the direct descendant in economic organization of the jobber in the old "putting-out" handloom weaving business and his practices merely conform to type. In the older form of business he did not often "go on strike" with his men for higher wages. Relationships were more largely personal, he was a buffer between the real employer and the men, and it was easier to drive good bargains in secret than in public. Yet serious personal differences did occur and a jobber sometimes discontinued relations with a merchant-manufacturer, taking with him all or nearly all the men who worked under him. With the newer relationship to a company, whose leaders were on less intimate terms with the jobber, the breaks inevitably became more frequent, passing gradually to such a basis as admits of collective bargaining.

As we have already seen, the workers are dependent upon the "jobber" who formerly, and to a considerable extent still, recruits them, perhaps from among his own friends and caste-fellows, often from his own native village. Besides these personal relations, workers frequently pay the jobber some kind of commission for the job and also borrow from him prior to the first pay-day. The group

of workers under a jobber becomes a loose occupational fraternity, standing together through much trouble.

The most frequent cause of irritation is the dismissal or reprimand of a jobber by the mill management. His entire staff is then likely to go out in a body. The manager of the Kurla Mills wrote in 1892: [1]

> The jobbers sometimes have great influence over the men or boys working under them and if these are dismissed, the men sometimes out of sympathy, but more through fear, strike work and refuse to return until the jobber is restored. It is very difficult to bring the charge of intimidation against the offenders, and consequently the employers are helpless.

Even today personal issues bulk large among causes of strikes and perhaps constitute a greater proportion of the total in India than elsewhere. In a recent five-year period, disputes in Bombay Presidency due to "dismissal or reinstatement of individuals" were 22.3% of the total,[2] and were second only to those due to "pay and allowances." Eighty-five per cent of all the disputes involving personal issues occurred in cotton spinning and weaving mills [3] where the jobber is most important.

But the idea of common action came late to the workers as a whole. A factory commission which sat in Bombay in 1875 found the workers indifferent [4] to the whole question of conditions of employment. At the end of the decade 1881–90, the government conducted an extensive inquiry into trade unions and other labor activity during that period. Nothing in the nature of unionism was found. One of the men who had been active in the establishment of mills in India wrote: [5]

> . . . mill hands have not yet learnt to organize themselves into trade unions; no record is kept of disputes, their occurrence being so rare and their duration being never more than a few hours.

He did state, however, that disputes were becoming more frequent owing to the increasing number of mills. The secretary of the mill-owners' association at Ahmedabad wrote: [6]

[1] *Parl. Papers*, 1892, XXXVI, Pt. V, Cd. 6795–XI, p. 124.
[2] For the period April 1921–March 1926. *Bombay Labour Gazette*, May 1926. p. 875.
[3] *Ibid.*, p. 877.
[4] Clow, *Bulletin of Indian Industries and Labour*, No. 37, p. 5.
[5] Ranchorelal Chotalal, in *Parl. Papers*, 1892, 36, Pt. V. Cd. 6795–XI, p. 121.
[6] *Ibid.*, p. 120.

Whenever these slight strikes, as they may be called, take place, the invariable cause of them is fining on the part of the employers for bad work or attempting on the part of the employers to reduce their wages. But such disputes are always amicably settled.

Another owner in the same town, who boasted of his 32 years in the cotton business, replied that he knew nothing about strikes and lockouts,[7] and had had no experience with them. Morarji Goculdas and Co., who founded cotton spinning in Sholapur, claimed for that cotton center, "No strikes or lockouts here." [8] Similar reports came from Khandesh and Belgaum, other rural centers in the Bombay Presidency, and from other parts of the country. The Government at Madras declared that "nothing in the nature of trade-unionism exists and these combinations of laborers are of a temporary character and have their origin in purely local grievances." [9] One company in Madras said that disputes "usually take place when grains and other foodstuffs are exceptionally low in price and the weather is dry," [10] this illustrating the bearing which starvation has upon the trade-union movement.

The government official who reviewed the evidence for Bengal admitted that there had been a few strikes but was positive in asserting: [11]

> An organized strike affecting the whole trade, or even all the workers in one mill, has never occurred. Whenever employers have come into collision with their employees and have persevered . . . they have, it is believed, been uniformly successful.

The first of these two sentences is taken direct from the statement of the Indian Jute Mills Association. None of the jute pressing concerns reported strikes during the decade, and one stated that [12] "the supply of labor is much greater than the demand."

Only one mill in the entire northwest, including the present United Provinces, had ever had anything more serious than "mild instances of wages disputes" and even in them "a few days generally suffice to prove the reasonableness of the company's position." [13]

[7] *Ibid.*, pp. 118, 119.
[8] *Ibid.*, p. 125.
[9] *Ibid.*, p. 109.
[10] *Ibid.*, p. 112.
[11] *Ibid.*, p. 141.
[12] *Ibid.*, p. 146. The Collector in Bombay estimated the permanent unemployed residents in that city at 25,000 in 1892. *Ibid.*, p. 129.
[13] *Ibid.*, p. 153.

In Bombay and Surat there was a little more evidence of labor trouble, though the Bombay Mill-owners Association reported: [14]

> . . . there have been no strikes or lockouts, or what would be known as such in Europe . . . As no trade union exists there is nothing to be said under this head.

A slightly different story was told by a spokesman of labor: [15]

> Strikes are of frequent occurrence in every one of the mills in this city (Bombay). The chief cause is the reduction of wages . . . These strikes sometimes last for four days.

This "labor leader" added that the reason unionism did not develop was because the workers were afraid of losing their employment, "so jealous are the employers of labor here of any combination among the workers for their mutual benefit." [16] The chief inspector of factories reported: [17]

> There being always a greater supply of labor than the demand, lock-outs are unknown here. Strikes have been many, two should be put down every year for each factory, but all of them have been short-lived, and in the end it is always the operatives who have given in, in some cases with fines, and in some cases with loss of arrears of wages. . . . Power on one side and ignorance and mildness on the other are the basis on which the present relations, and the relations are quiet, rest.

This was a correct account of the policy of the mill-owners and its effect. Rule number 13, agreed to by the mill-owners, was given by their secretary as follows: [18]

> Persons striking work, or intimidating or conspiring with other persons employed in the factory to strike work, may be summarily dismissed, and shall be liable to forfeit all wages then accrued due to them, and also to be prosecuted.

Apparently the strikes were only "mild disputes" which were always settled in favor of the employers. Unrest was not lacking among the workers, but they were still powerless. J. N. Tata, one of whose mills was in a suburb and hence to this day in an unfortu-

[14] *Ibid.*, p. 130. At Surat there were two strikes, apparently of the entire staff, in 1882 because of dissatisfaction with the manager. *Ibid.*, p. 121.
[15] *Ibid.*, p. 169.
[16] *Ibid.*, p. 168. This man, N. M. Lokhanday, to be heard of again presently, had been Secretary to the Mill-hands' Association since 1884.
[17] *Ibid.*, p. 136.
[18] *Ibid.*, p. 131.

nate position so far as labor is concerned, spoke more seriously of strikes than did any other representative of capital. He reported a strike in two departments lasting three days.[19]

The first concerted action by a large number of the factory laborers of a district appears to have occurred in Bombay in 1884 when the Bombay Factory Labor Commission was investigating the situation preparatory to suggesting changes in the meagre Factory Act which had been put into effect in 1881. Two great meetings of mill-hands were held in Bombay, and a resolution, reported as signed by about 5,000 workers,[20] was presented to the Commission. Five specific reforms were requested: [21]

1. That all mill-hands be allowed one complete day of rest every Sunday.
2. That half an hour recess be allowed them at noon every working day.
3. That work in mills should commence at 6 A.M. and cease at sunset.
4. That payment of wages be made not later than the 15th of the month following that for which they have been earned.
5. That a workman sustaining serious injury in the course of his work at the mill, which may disable him for a time, should receive full wages until he recovers, and that in case of his being maimed for life, suitable provision be made for his livelihood.

The correspondence between the Secretary of State for India and the Viceroy indicates that the London government was concerned about the "views of the mill hands"; it also desired to comply, perhaps under pressure from the manufacturing interests in England, with the recommendations of the Berlin conference.[22]

But even this apparent labor action was not the work of actual labor men, although it may be supposed to have expressed opinions which they held. The moving spirit appears to have been the Hon. Sorabji S. Bengali,[23] an energetic Hindu reformer who did much to create public opinion favoring labor legislation. The proposals were put through by Mr. N. M. Lokhanday, a local editor, who signed himself, "Local Member of the Factory Commission for the Bombay Presidency and the President of the Mill-hands' Association." [24]

[19] *Ibid.*, p. 138.
[20] *Parl. Papers*, 1890–1, LIX, Paper No. 86, p. 106.
[21] *Parl. Papers*, 1888, LXXVII, No. 321, p. 10.
[22] See correspondence in *Parl. Papers*, 1890–1, LIX, Paper 120, pp. 3 and 9. Also paper 224, p. 4.
[23] See also Das, *Factory Legislation in India*, p. 33.
[24] *Parl. Papers*, 1892, XXXVI, Pt. V, Cd. 6795–XI, pp. 118, 119.

In 1889, during the discussion of the revision of the Factory Act of 1881, Mr. Lokhanday, as president of the Bombay Mill-hands' Association, presented to the Viceroy the set of resolutions drawn up in 1884. The very existence of the Association was scarcely known to Bombay employers. Three years later, when the government was making the extensive inquiry referred to above, the Collector of Bombay stated that the Association did very little to help in the presentation of the case.[25] Had the factory inspector not taken their part, there would have been almost no presentation of the laborers' point of view. Mr. Lokhanday remarks upon the difficulty experienced in getting workers to become identified with his "association" because of fear of losing their positions.[26] The inspector of factories described this "association" as "a kind of mill-hands' association, but it is quite in its infancy — a factor which can hardly influence the relation between the employer and the employed in any way, at least for the present." [27]

In 1895 a small flurry led to a mild government inquiry into labor conditions in the Calcutta jute mills. But this investigation also was initiated not by Indian labor but by the jealousy of Calcutta's principal rivals, the Dundee jute factory owners.

Before 1895, labor developed little class consciousness and did nothing to organize effectively what little it possessed. Although ignored by the employers, the several small strikes which had occurred had nevertheless taught workers the power of united action even though they had no unions.

Under date of October 13, 1895, the directors of Budge Budge jute mill [28] report that they "regret that a strike among the work-people, by which the mills were closed for nearly six weeks occurred during the half year," had lost the company 80,000 rupees. Another strike stopped the mill for eight days in June, 1896, and others occurred in both halves of the year in 1900.[29] In 1927, an elderly *babu* in this mill told the writer that to his knowledge there had been various unsuccessful attempts for the past twenty years to organize the workers in the jute mills of Budge Budge.

In 1897, the Amalgamated Society of Railway Servants of India and Burma, under the control of European and Anglo-Indian rail-

[25] *Parl. Papers*, 1890–1, LIX, No. 86, p. 106.
[26] *Parl. Papers*, 1892, XXXVI, Pt. V, Cd. 6795–XI, p. 129.
[27] *Ibid.*, p. 136.
[28] From the directors' report of that date to the shareholders.
[29] *Ibid.*, for those years.

way men in India,[30] was formed and has functioned continuously to the present day although it has been distinctly outside the main trend of the Indian labor movement.

A disastrous outbreak of the plague occurred in the late nineties. Starting in Bombay, where many people died and more fled to the country, it spread to Cawnpore and other up-country centers, causing a serious scarcity of labor in the industrial centers for many years. In Bombay, about 1898, the rivalry for hands was such that laborers were actually auctioned off on the street corners.[31] The workers became more independent and numerous outbreaks occurred in individual mills. The manager of a Bombay cotton mill related that his ring-boys had struck in 1898 and forced him to raise their wages by 10 per cent.[32]

About 1905, when electric light was introduced, another source of trouble developed in the lengthening of hours in many mills, and a number of sporadic strikes took place.[33]

Between 1905 and 1911, labor matters came to be discussed more and more, but, as in earlier times, primarily because of the interest of non-laboring groups in England and India. "Acting on a suggestion made by His Majesty's Secretary of State for India," the Government of India appointed on December 17, 1906, the Freer-Smith Committee to investigate the conditions of labor in textile factories. The report of this small committee, which showed the need of a larger and more comprehensive inquiry, led to the appointment on October 10, 1907, of the Morison Commission, which collected much evidence and issued a comprehensive report. But labor took an almost negligible part in stirring up interest, furnishing information, or formulating proposals for reform. The one achievement to its credit was a single meeting in September 1905, at which a twelve-hour day was demanded.[34] Prosperity prevailed in both the cotton and jute mills during this period, but some members of both industries evidently felt that the long hours were to their disadvantage. The jute mills of Bengal were ready to submit to an inquiry in the hope that it would lead to legal limitation of hours and stop the over-greedy from utterly spoiling the markets

[30] *Bombay Labour Gazette*, July, 1928, p. 987.
[31] Clow, *Indian Factory Legislation*, p. 27.
[32] *Parl. Papers*, 1909, Cmd. 5419, p. 152.
[33] The laborers appear to have had something of a superstition about electric light. Many said that it was ruining their eyes.
[34] Clow, *Bulletin of Indian Industries and Labor*, No. 37, p. 36.

for their products. In Bombay, many cotton mill agents were still paid on the basis of *pounds produced* and naturally desired as nearly continuous operation as possible, regardless of markets and profits. Others who were paid on the basis of profits (and who were therefore perhaps more "philanthropically" inclined) urged that the fourteen to fifteen hour working day be reduced. Although they probably advocated nothing which affected their business unfavorably, mill-owners, both European and Indian, did far more to bring about reform in labor conditions than did the laborers themselves.[35] Even the foreign newspapers, *Capital* and especially *The Times of India,* under Mr. Lovat Fraser, lent their influence and worked powerfully for labor reform.[36]

In 1907–8, when the Morison Commission was making its inquiries, a few unions were uncovered in Bengal, but the Bombay Mill-hands' Association had apparently ceased to be. In any case, the only evidence which was presented directly from mill-hands in Bombay was obtained by the energetic president and some other members of the Commission who went on two successive Sundays to the places where the workers lived and secured, with some difficulty,[37] statements as to their situation. In Calcutta, two different unions are mentioned, of which one (sometimes called the Mohammedan Association) was composed solely of mill operatives, and had come into existence in 1895. One of its officers reported: [38]

> [It is] doing its utmost to popularize mill work amongst the masses of the population in general and Musalmans in particular. . . . They did not keep a list of members, but their membership numbered some thousands. Neither had they a fixed place of assembly. One Sunday in December about one thousand operatives assembled to discuss questions in connection with the present inquiry. . . . They had a president, vice-president, treasurer and honorary secretary of the association. The cash balance at present would be under Rs. 100. Their last expediture was incurred on the improvement of a mosque, and before that they disbursed alms on the occasion of the Coronation. The association raised subscriptions for purposes of charity, and assisted in cases of sickness, or if an operative had to be sent home.

[35] *Ibid.*, pp. 34–5.

[36] Naturally, where race hatred enters, they were accused of working only for Lancashire. The assignment of motives is difficult. At any rate labor gained, and perhaps not at the expense of the Indian industry in its contest with Lancashire.

[37] 1909, Cmd. 4519, p. 156. "The men objected to giving their names: as they said they would be marked down by the mill managers and dismissed; but they were unanimous at each place."

[38] *Ibid.*, pp. 263–5.

The president of this "association," who was a mill clerk, presented both written and oral evidence to the Commission and also brought a group of jute workers to testify,[39] one of whom was "honorary secretary" of the association. His evidence furnishes further facts as to the nature of the "association." "Last Sunday 500 Mohammedan and Hindu operatives met near the Hajinagar Bazar." Although his figures are somewhat "rough," his president was evidently correct in stating that the association had no "fixed place of assembly" and that the people who attended these various meetings did not come in response to notices sent to a "list of members."

The other labor organization, in spite of a very ambitious name, the Indian Labor Union, appears only once in the voluminous evidence and then in an inconspicuous footnote. Its "president" was a "local barrister," probably more or less self-appointed to give play to his forensic abilities rather than for his knowledge of the labor situation. His contribution to the work of the Commission was to produce five weavers and ten spinners from the Budge Budge jute mill and let them speak for themselves.[40] The record as to even this modest performance is peculiar in that their statements "were recorded by the president." One suspects that this group of workers did not "come before the Commission" but that the president rounded them up and interviewed them in the neighborhood of their shacks as he had done in other centers.[41]

These "organizations" bear little resemblance to the "fighting unions" of the West. The "Indian Labour Union" exhibited a reticence entirely unknown in Europe and America, and the Mohammedan Association, which was "doing its utmost to popularize mill work amongst the masses of the population," could hardly be called a trade union. The collection of funds to rebuild houses of worship and distribute alms in celebration of the coronation of the foreign *raj,* is more like the activities of a medieval gild than of a modern union. Even some of the statements of these "leaders" are open to skeptical interpretation. The "cash balance" of "under Rs. 100" was probably a full Rs. 100 below that amount. The lack of membership lists, dues, and place of assembly show conclusively that the association was a one or two man affair which had taken

[39] *Ibid.*, pp. 270–1.
[40] *Ibid.*, p. 278, n.
[41] *Ibid.*, pp. 28, 156 and 218.

some simple concerted action on two or three occasions during the preceding twelve years. The "thousands" in their "membership" probably represented any casual crowd which happened to be in the street when the self-appointed leaders went out to stir up interest.

Despite almost universal testimony before Commissions between 1880 and 1908 to the effect that there were no actual unions, many stated that the laborers in an individual mill were often able to act in unison and that, as a group, they were very independent. The inspector of boilers spoke [42] in 1892 of "an unnamed and unwritten bond of union among the workers peculiar to the people," and the Collector of Bombay wrote [43] that although this was "little more than in the air" it was "powerful." "I believe," he wrote to the government, "it has had much to do with the prolonged maintenance of what seems to be a monopoly or almost a monopoly wage." Sir Sassoon David said in 1908 that if labor "had no proper organization, they had an understanding among themselves." [44] Mr. Barucha, lately Director of Industries in Bombay Presidency, stated that "the hands were all-powerful against the owners and could combine, though they had not got a trade union." [45] If there is some degree of exaggeration in these statements, the word of the (British) deputy commissioner at Wardha certainly overshot the mark when he said that "the workers were masters of the situation; and the mill-owners were really more in need of protection than the workers." [46] Another British official who had made a special study of the labor question in the United Provinces made a just appraisal of the situation, in writing:[47]

> There was some combination even now, but he had not heard of any combined movement having for its object a restriction of working hours. He had heard of a combination and subsequent strike, owing to something done to one of their members. The workers understood a strike; but as yet they had no organization, and he doubted whether they realized their power. He should say there was no organization, mill by mill, over a large area. It might sometimes happen that one or two men had the power to call out the whole staff, and they occasionally demanded an in-

[42] *Parl. Papers*, 1892, XXXVI, Pt. V, Cmd. 6795–XI, p. 132.
[43] *Ibid.*, p. 128.
[44] *Parl. Papers*, 1909, Cmd. 4519, p. 76.
[45] *Parl. Papers*, 1909, Cmd. 4519, p. 148.
[46] *Ibid.*, p. 351. See also p. 118, evidence of a mill supervisor.
[47] *Ibid.*, p. 220.

crease in the rates of pay. This, however, was only in individual mills and there was no organization to consider questions affecting their general interest, such as the restriction of hours.

This general account is borne out by both the hands themselves and some of the best informed men inside and outside the mills. Groups of hands in Bombay "had no means of combining all over Bombay" and therefore could not secure their ends.

Up to 1908, there was only sporadic and irregular concerted action among Indian laborers, even on the scale of the individual shop. When occasionally there was united action, it was rather that of a mill mob aroused over a particular, temporary, purely local, and often personal grievance, than that of a business-like trade union.

Between 1908 and the World War a slight, slow change took place. A worker's welfare organization was formed in 1910 and continued in existence until 1922 but was never very active. During the War there was a certain amount of unrest and a number of sporadic strikes due apparently to changed conditions rather than to a fundamental modification of labor's attitude. Prices outran wages but the whole economic life was so stimulated that the working classes in general were better off. Before the end of the War, however, prices had gone so far ahead of wages, and all classes of the population had been so stirred by the new currents set in motion by the War that the beginning of a new and more important epoch may be observed. Growth has been irregular and no definite status has yet been reached but the past twenty years have been marked by many of the characteristics of early union growth in other industrialized countries. There has been much agitation, many strikes, often over trivial and ill-defined issues, a considerable amount of violence, a communist movement with some terrorism. At last industrial labor has become self-conscious and has begun to organize. Government action has indicated both concern and sympathy. Mainly through the promptings of the international labor movement, a number of measures which presuppose the existence of trade unions and recognize them as a normal part of the machinery for social, economic and political control have been adopted. Trade union membership has risen, especially in Bombay Presidency, but also in other sections.

Cases of concerted action, including larger numbers of workers, have become more frequent, sometimes more orderly and certainly

more successful. No longer limited to single groups or departments within a factory, they have come to affect groups of mills, even all the mills of a given industry in great industrial centers. Prior to 1922 employers made large profits and wages lagged considerably behind prices. Strikes were therefore short-lived and often brought increased wages. Madras appears to have led in trade union organization, indeed to have seen the organization of several unions in 1918.[48] The first great strike affecting an entire industry in a given center occurred in the Bombay cotton mills at the end of 1918. By January 7, 1919, practically all the 125,000 hands in all the cotton mills in the city were on strike.

Labor disputes continued through 1920 and 1921, the number doubling to 400 in the latter year.[49] Nearly all industries and public utilities, including railways, and also the tea-gardens were affected. The economic motive of the agitation was interspersed with much political feeling, but the government discerned real progress in trade-unionism. Its report noted a tendency toward "the direction of the labor unions by the laborers themselves and the gradual exclusion from positions of responsibility" of outsiders. The next year's report speaks of "the remarkable growth in the number" of trade unions and observes that "there seems little doubt that the movement has come to India to stay." [50] Yet it remarked that two of the most serious strikes, one involving 11,000 railway workers in Assam and another involving 10,000 cotton mill hands in Madras, were largely tinged with political influences. It also stated that many of the unions had "very little cohesion" and were "virtually strike committees." [51]

In 1922 the fall in prices and the depression in trade brought forth a fresh crop of strikes to ward off wage reductions. Few of these strikes were successful. The depression led to requests for tariff protection and these in turn to inquiries by the Tariff Board. In the case of the steel and cotton mills, the Board found, among other things, that undue numbers of laborers were employed and recommended such changes in organization as would result in higher labor efficiency and reduced costs of production. Similar recommendations were made by the State Railways' Workshops Committee appointed in 1926. The attempts to put these recom-

[48] See *Parl. Papers*, 1920, XXXIV, Cmd. 950, p. 69.
[49] *Parl. Papers*, 1921, XXVI, Paper No. 202, pp. 142–3; 1922, XVI, Papers No. 171, p. 204.
[50] *Parl. Papers*, 1922, XVI, Paper 171, p. 202.
[51] *Ibid.*, p. 203.

mendations into force, together with the movement to lower wages slightly, and improve discipline, resulted in several serious labor disturbances. In 1923 and 1924 general strikes of a few months' duration in the cotton mills of Ahmedabad resulted in a sixteen per cent wage reduction. In the Bombay cotton mills, strikes occurred because bonus payments, equal to about a month's wages annually, which had been paid regularly for five years, were discontinued. During another strike in 1925 the workers lost a total of nearly 11,000,000 days, the wages for which would have been more than as many rupees. In the colossal strike of 1928—the largest strike which has yet occurred in India—over 31,000,000 days were lost.

Other industries besides cotton have had labor disturbances of varying severity. Almost every railway in the country has had one or more serious strikes, usually emanating from its shops. One on the East Indian Railway in 1928 resulted in the wrecking of a train and the death of twenty persons.[52] The woolen mills suffered from labor unrest as did the iron and steel manufacturers. The Tata Iron and Steel Company employing some 25,000 persons, has had two disastrous strikes in the post-War period, one continuing for the better part of six months.

LABOR DISPUTES IN INDIA, 1921–33 *

YEAR	NUMBER OF DISPUTES	NUMBER OF WORKERS INVOLVED	NUMBER OF WORKING DAYS LOST
1921	396	600,351	6,984,426
1922	278 †	435,434	3,972,727
1923	213	301,044	5,051,704
1924	133	312,462	8,730,918
1925	134	270,423	12,578,129
1926	128	186,811	1,097,478
1927	129 ‡	131,655	2,019,970
1928	203	506,851	31,647,404
1929	141	532,016	12,165,691
1930	148	196,301	2,261,731
1931	166	203,008	2,408,123
1932	118	128 099	1,922,437
1933	146	164,938	2,168,961

* *Bombay Labour Gazette,* May, 1934, p. 690.
† One dispute extended over five provinces.
‡ One dispute extended over three provinces.

[52] One newspaper reported that an eye witness had seen the train officials killing the wounded with a heavy instrument. This is an example of the way in which political and racial prejudices color accounts of happenings in India. This strike also brought on a riot in which soldiers were used, killing one person and wounding another. *India in 1928–29,* p. 8.

So disrupting were the strikes to the economic life of the country, especially in Bengal and Bombay Presidencies, that both provincial governments appointed committees to study the situation. The main features of these disturbances, as reported by the Bombay Committee, are illuminating.[53]

(*a*) The frequency of the strike without notice.
(*b*) The absence of any clearly defined grievance before striking.
(*c*) The multiplicity and sometimes the extravagance of the claims put forward after the strike had begun.
(*d*) The absence of any effective organization (except perhaps at Ahmedabad) to formulate the claims of the operatives and to secure respect for any settlement which might be made.
(*e*) The increasing solidarity of employers and employed, and the capacity of the operatives to remain on strike for considerable periods despite the lack of any visible organization.

Similar vagueness was reported in other centers. Frequently the workers, even the leaders, did not know what they wanted. An Indian student of the problem writes:[54]

> Many unions were nothing but strike committees. Often they failed to formulate their grievances and give even formal notice of their strikes. When asked for, they could not give reasons for strikes. At the time of settlement they would shift ground and make extravagant claims. It was only natural for a group of men who were impelled by an inner spiritual force not to be able to analyse their grievances in any known economic terms.

This is working the undoubted "spirituality" of the Indian people too hard. Yet throughout Asia, and to a large extent throughout the world, there was in the post-War period much vague unrest due simply to the new habits and hopes engendered during the World War and to the discussions which grew out of it.

Most of the strikes arose over some economic grievance, such as wages, bonus, hours or working conditions, but mixed with these was a large and varied number of non-economic grievances. The

[53] *Bombay Labour Gazette*, I, 8, p. 24.
[54] Das, *The Labor Movement in India*, p. 36.

Labour Intelligence Officer of Bengal gives a list of 42 non-economic causes of strikes in that province from 1921 to 1929, showing that some group was ready to strike in protest over almost anything.[55]

The years since the War have been a time of unrest and agitation, with much experimentation in trade unionism. Especially in the earlier years, many "unions" came into being to die within a few hours when, or before, the immediate contest had been won or lost. They were less than "strike committees." The workers simply struck and formulated demands for higher wages. However, a few groups held together for some months or years and a number still exist. The workers have learned two important lessons, namely, that "in union there is strength," and that contributions to union funds sometimes pay good returns. Leaders have been developed and have learned something of how to deal with the men, the employers and the government. Besides the experience gained at home, they have come into contact with union leaders of other countries, especially in England and at the international labor conferences. Employers have also come to take a different attitude. Many employers favored labor organization before unions were formed. Through British contacts, employers have generally come to view unionism more realistically than have many employers in America. But when it comes to a "show-down" and employers find their control questioned, most of them, both British and Indian, falter. Often they insist that they would welcome "proper" trade unions, but that the existing organizations are led by outside self-seekers and trouble-makers. The organizers are commonly ignorant of union affairs and are often as bad as the employers claim them to be, yet the real secret of the employers' opposition appears to be that they hate to surrender the position in which they can "hire and fire" without notice and at their own untrammeled will. In this phase of the Indian labor movement the attitudes of British and Indian employers were similar. The former were more ready to accept unionism as such but they had less patience with the incipient unionism with which they had to deal, and were often possessed of a lurking fear that this was a blow at something more than factory discipline—at British *izot* (prestige) in India. Indeed, the movement sometimes looked like revolution. Starting as it did about the time of the Amritsar "massacre" in 1919, the noncoöperation agitation and

[55] Royal Commission on Labour in India, 1931, *Evidence*, V, Pt. I, p. 123.

other stirrings of unrest, it was hard to avoid this conclusion. It might even be Bolshevism. Indian employers were less familiar with trade unionism in practice, but they understood the Indian workman better and had less fear of a social, and more sympathy with a political, upheaval.

The government has also made progress during this period. In the beginning there was no trade-union legislation and the old conspiracy principles of the Common Law applied to labor combinations. The leaders of one of the first unions were summoned to the Madras high court and there fined £7,000.[56] Since then trade-unionism in Madras Presidency has been crippled. But the government recognized that this was an unsatisfactory state of affairs,[57] and the Labor Government's Secretary of State for India said: [58]

> You cannot have the industrialization of a great empire like India without the assistance of organized labour, and therefore just as you have got to use capital and research you have got to try and see that labour is properly and carefully organized. Therefore, not only ought we to welcome the new Trade Union movements in India, but we ought to recognize them as one of the essentials of Indian development.

In 1926 the passage of the Trade Unions Act freed the movement and most of the elements of the British labor code, in milder form, have now been applied, or are about to be applied, to India.

The number of trade unions has fluctuated and there has never been a satisfactory enumeration. According to the Bombay Industrial Disputes Committee, there were, at the end of 1921, 77 nominal trade unions in Bombay Presidency, with a membership of 108,000,[59] but when the Labor Office checked up in 1922, it found only 22 "nominal" unions which claimed a membership of 57,914. Of nine in Bombay only five were active, all having been organized after May 1919. The Ahmedabad unions were organized in 1920 yet they were "both numerically and financially the strongest." [60] Bengal has vied with Bombay in number of strikes but has not had so many or such well organized unions. In 1924 Bengal Presidency had 73 unions, which were also only nominal, and no estimate of membership could be hazarded.[61]

[56] *Bombay Labour Gazette*, Feb. 1922, p. 41.
[57] *Parl. Papers*, 1922, Paper 171, p. 205.
[58] *Bombay Labour Gazette, op. cit.*
[59] *Bombay Labour Gazette*, I, 10, pp. 17 *et seq.*
[60] *Ibid.*
[61] Gilchrist, *Wages and Profit-Sharing*, p. 262.

With the adoption of the Trade Unions Act of 1926, recognizing unions within the law, there was a considerable increase in numbers. Some serious strikes in 1927 and 1928 furthered this growth, which for a time was phenomenal in Bombay Presidency. In September 1923 the membership had been just slightly over 40,000. In July 1928 there were 87 unions in Bombay Presidency with a membership of 111,320, forty of which, with a membership of nearly 80,000, were in Bombay City and Island. The cotton mill strike in Bombay in 1928 added to this boom. By January 1929, a new union of cotton mill hands, organized in May 1928, had a membership of 65,000. In March 1929, 95 unions had a membership of just over 200,000[62] which held at this number for about fifteen months and then suddenly dropped by nearly fifty per cent. The union of cotton mill hands which sprang from nothing to 65,000 sank to 800, yet during 1929, it had called a strike to which 75,000 hands responded at once and were followed shortly by 34,000 more. The unions are popular during strikes, but tend to be abandoned when the dispute is ended.

At the end of 1933, textile laborers made up 34 per cent of trade union members in Bombay Presidency. The chief strength of unionism was among transport workers. Seamen had 24.98 per cent and railways, including railway workshops, 20.10 per cent.[63] Unionization varies, however, with centers. In Ahmedabad, where the most effective union in the country operates, the figures fell much less than in Bombay. At the end of 1933, that smaller community reported about 32,140 members of textile unions while Bombay had only 6,615.[64]

The unions are organized in a haphazard fashion. In general they are industrial unions, aiming to include all the people in a given industry. Such are the railwaymen's, seamen's and postmen's unions, which have the largest memberships, and the Bombay Textile Labor Union. A few, however, especially in the Ahmedabad cotton mills, are organized by departments, but essential unity of action prevails, as the same officers serve for all. The Bombay Labour Office, therefore, classifies the Ahmedabad cotton mill unions as a "federation"; there were five other "federations" in 1929. Generally the federation merely unites the various unions in a given

[62] *Bombay Labour Gazette*, April 1929, p. 814.
[63] *Ibid.*, Feb. 1934, p. 440.
[64] *Ibid.*, pp. 458–9.

industry or line of work, such as the Bombay Presidency Postmen's Union.

In Bengal, the other chief industrial province, it is estimated that between 1920 and 1929, 140 employees' organizations had come into existence, but only 86 remained in recognizable form in 1929, and only 10 were registered under the Trade Unions Act. A peculiarity of Bengal has been that most of its so-called unions are made up not of manual workers, but of clerks. The jute industry, corresponding in size and importance to the cotton industry in Bombay and offering in some respects ideal conditions for labor combination, only in 1928–9 developed any effective unionization. In 1929, there was an attempt to organize one big jute-workers union. While the leaders' control was very imperfect and disagreement finally split the union, it did bring about an almost general strike, and met the all-powerful Jute Mills Association with a considerable degree of success. The financing of this labor organization was of interest, for the union members paid no dues, and the Indian woman Doctor of Philosophy who directed affairs during most of the strike spent considerable sums of money from a source which is still a mystery.

This union was of sudden appearance and very shadowy, yet it introduced distinctly modern demands, including the eight-hour day and a minimum wage of Rs. 8 ($2.88) per week. These demands were not satisfied but unionism made some progress during this strike. Many things were brought into the open, such as wage-rates, and a beginning was made for the future development of collective bargaining. Yet the attitudes on both sides are still far from "modern." The (European) Labour-Intelligence Officer expresses freely his criticism of the labor leaders:

> Penalties should be made applicable to leaders and instigators, and in their cases the penalties should be of a substantially deterrent character. . . . They may cajole or buy themselves to office; or they may bribe the existing office bearers. . . . The usual leaflet and platform campaign will follow. Well-paid orators will incite the workers; stealthy hirelings will visit the workers' houses in the silent watches and promise great gains or dire results. The workers will obey; they will serve the leaders' purposes for gain or for demonstration purposes, and then, after three weeks, they will crawl back, beaten, to the old rate of wages, with three weeks' total loss to their debit. By that time, the leaders will have disappeared.[65]

[65] Royal Commission on Labour in India, 1931, *Evidence*, V, Pt. I, pp. 155–6.

Of the ten unions registered in Bengal in 1929, all but one had to do with transport, and seven were of railway employees. Unionism has had much less development on that side of India—mainly because of the repressive power of European employers—than in Bombay Presidency.

An All-India Trade Union Congress holds annual congresses and has provincial committees for the various provinces and presidencies. It has had certain affiliations with the Indian Nationalist Congress, and during this decade of disturbance has inclined toward political agitation and radicalism. The fight between the more regular and the radical wings of the trade union movement has become one of its main features, and in the autumn of 1929 the Trade Union Congress split on the political question of boycotting the Royal Commission on Labour in India, newly appointed by the King-Emperor. The result was the formation of a new All-India Trade Union Federation controlled by the moderate, or coöperating, group. The groups were still separate early in 1934.

Leadership. Few Indian workmen have had sufficient education or political skill to assume leadership in the labor movement. The "briefless barristers," thrown up by an ill-adjusted educational system, too often have here found an opportunity for notoriety, and occasionally for political and social advancement. Some have been pure self-seekers. It is said that the workers' contributions have frequently been embezzled, and it would be strange if this were not true. Probably the proportion of these failures has been no greater in India than might be expected in any country in which the workers were so backward and illiterate. But some able union officers are beginning to rise from the ranks. At one union center, I found two important leaders, one the vice-president and another the secretary of the union, at work in the plant. Minor posts in the locals are being taken by workers, and they are gradually acquiring experience in organization. But that they find it difficult to keep accounts and to handle the routine of union administration is evident from the report for 1928–9 of the Registrar of Trade Unions in Bombay Presidency under the Trade Unions Act of 1926.

> In the year under review no fewer than 26 additional Unions were registered and the same trouble was experienced. In several cases the rules had to be entirely redrafted in this office. With regard to the annual returns the remarks passed by the auditors on some of the returns received

show that in several cases no counterfoils for receipts were available to verify the "Receipts" side of the cash book nor vouchers to verify the "Payments" side. In several instances subscriptions collected by the "collectors" were reported as not having been paid into the offices of the Union within the time-limit laid down in the Union's rules. In some cases the amounts collected remained in the hands of the "collectors" for about a fortnight to a month; and in two instances, for even six months. The Register of Members was not properly written up to the end of the year and the auditors were therefore unable to verify the amount of subscriptions shown as outstanding in the annual returns. Auditors have also drawn attention to the fact that in several cases the amount of cash kept on hand by secretaries or treasurers, as the case may be, exceeded the limits laid down in the registered constitutions of the respective Unions.[66]

The deficiency of leaders from the ranks has been partly offset by the social workers who, in spite of great difficulties and discouragements, have done very effective work. With perhaps one exception they have been Indians and have drawn their inspiration very largely from Indian sources, though, in nearly all cases, they have had acquaintance with western culture and ideals. There has been a spirit in their work, even in the case of the English missionary who turned labor leader, which is of the East rather than of the West.

The most outstanding group of this sort is that associated with Mr. Gandhi. Miss Anasuya Sarabhai, the daughter of one of the early and successful mill-owners, had carried on an elaborate and effective social and educational work in Ahmedabad before trade unions were organized there. This called for a long period of discouraging effort among the lowest classes by a wealthy woman in a society where woman's only place was thought to be in the home. In her own city, this daughter of a mill-owner, whose brother controls there one of the best mills in the country, has given some twenty years of her energy and time as well as her money to help the cotton mill workers. When the post-War difference between wages and prices appeared, she became president of the most unpopular organization imaginable in such a city, a textile labor union, and fought the owners of the city's sixty mills. In this fight she has been fortunate in the assistance both of Mr. Gandhi's great moral prestige and of two very able men as officials in the organization. Not least of Miss Sarabhai's achievements has been her influence among

[66] *Bombay Labour Gazette*, June, 1930, p. 1010.

her own mill-owner relatives. A sister and a niece, both able and well educated, are joining her in the work for labor. Even her mill-owner brother undertook to induce the Mill-owners Association there to agree to employ only members of the union; but in this he failed.[67]

The Ahmedabad group has created the most efficiently organized union in the country and has held it together by the application of high moral principles. On one occasion in 1920, when prices were rising very rapidly, the Bombay mill-owners raised wages 15 per cent; the Union in Ahmedabad then asked for another advance. The case came before a group of arbitrators including Mr. Gandhi. He pointed out that the union had agreed to make no demands until a certain date—the agreement had a few months to run—and requested that the demand be withdrawn. So consistently honest and upright has Gandhi been that his picture is in the offices of many mills throughout the country and several mill-owners claim actually to wear the home-spun and home-woven cloth which he advocates for all. Even the government of Bombay, which has kept this man in prison for many months at a time says: [68]

> The position of Mr. Gandhi as a peacemaker in industrial disputes in Ahmedabad is a remarkable one, and is due to the fact that his political and spiritual ideals have won him devoted followers both in the ranks of capital and in those of labor. His impartiality is unquestioned, for it is known that he does not put forward a demand or support a proposal from labor unless he is convinced in his own mind that it is fair and reasonable. He is as severe in his condemnation of indiscipline among the workers as he is of failure on the part of mill-owners to treat their labor fairly. It is his personal influence that has kept the peace so well in Ahmedabad as compared with Bombay and prevented the dislocation of the industry by ill-advised strikes and lock-outs.

In its fairly successful contest with the mill-owners, this union has kept their respect and has done much to improve the men and their families, not only providing them with economic benefits, but also teaching them thrift, honesty, industry, and sobriety. It is said that members who persist in drinking are expelled.

Another peculiarity of leadership in India is that a few well-educated "outsiders" associate themselves in the leadership of a

[67] *Royal Commission on Labour in India*, 1931, *Evidence*, I, II, p. 134.
[68] *Royal Commission on Labour in India*, 1931, *Evidence*, I, Pt. I, p. 138. Statement of the Government of Bombay.

large number of unions.[69] Mr. N. M. Joshi, B.A., M.L.A., in addition to being the General Secretary of the All-India Trade Union Congress and the President of the G. I. P. Railway Staff Union, was either president or treasurer of eleven other unions recently in the Presidency. Mr. F. J. Ginwala, M.A., L.L.B., M.L.C., is the President of the Central Labor Board and is on the executives of thirteen other unions. Half a dozen other men are similarly associated with a number of unions.

The Servants of India Society has furnished a number of helpful labor leaders. This is a sort of brotherhood founded by one of the great men of his age, Gokhale, and made up of men, usually of considerable talent and education, who have vowed to accept only a subsistence wage and to give themselves as servants of their motherland in whatever capacity she needs them. The most distinguished of its living members is the Right Honorable Sir Srivinasa Sastri, who, from an inconspicuous Brahman school-teacher, has become a member of the King's Privy Council. Different members specialize on particular social problems. Sir Srivinasa Sastri has devoted much time to the question of Indians in Africa and was a member of the recent Royal Commission on Labour in India. Messrs. N. M. Joshi, R. R. Bakhale and other members have turned their attention more specially to the labor movement. Mr. Joshi has legal training and has been very active on behalf of labor since the World War, attending the Washington Labor Conference as a labor delegate and participating in several other international labor gatherings. As a labor member of the national Legislative Assembly he has worked hard for legislation similar to that in England. He has been one of the principal influences for moderation against the avowedly communistic group, and was also a member of the recent Royal Commission on Labour in India.

C. F. Andrews, an Anglican missionary, has also become a labor leader. If injustice is being done in Africa, or some part of India is suffering from famine or flood, or laborers are having trouble with their employers in some center, there Andrews is likely to be. And like Gandhi, he does his best to get the facts, to interpret them fairly and clearly and to introduce as much human kindness and sympathy as possible. As one of the organizers and later the president of the labor union in the Tata Iron and Steel

[69] *Ibid.*, p. 112.

Mills at Jamshedpur, he has had very trying experiences. Like Gandhi he has set high standards. There are many people who quote Kipling's phrase that "East is East and West is West, and never the twain shall meet," but few who remember the main point which is in the lines immediately following:

"But there is neither East nor West, Border, nor Breed, nor Birth,
When two strong men stand face to face tho' they come from the ends of the earth."

Gandhi and Andrews show that at their best the two civilizations are not far apart. And yet probably neither man would have been what he is without his intimate contact with both cultures.

The growth of unionism has been "patchy" and has followed neither territorial nor industrial lines. Among many local influences which have affected the growth in different centers and industries, the strongest appear to be: (1) the local labor supply; (2) the prevailing type of employer; (3) the personalities of the leaders; and (4) the type of industry.

Let us look at these in order. The character of the labor supply in Ahmedabad and Bombay has been more favorable to unionization than in any other center. This has depended upon homogeneity, shortage in the labor supply and the worker's psychology. Mixed though they are, the workers in these two cities are drawn largely from their own general neighborhoods and from similar social and economic strata. In the case of Bombay the neighborhood is larger. Both Ahmedabad and Bombay workers come chiefly from the rural districts of the Presidency and are overwhelmingly of *Mahrathi* stock and language.

Increase in demand for labor has fostered independence. It was early noted that with the growth of mills in Ahmedabad strikes were increasing. The great growth of mills and other industries in Bombay, such as the railway work-shops and the various public utilities, has made labor there more independent than it has been in most of the rural centers. The workers of these two districts are not unaggressive. The *Mahrathi* stock claims Rajput descent and only a few decades ago displayed considerable military prowess. Many are from the cultivating caste, the *Kunbi,* and have more mental and moral stamina than the *Mahars,* who predominate at Nagpur, or the *Chamars* at Cawnpore. Those who come from long distances to Bombay might even be called aggressive in type. A

large group of outsiders are hardier Mohammedan weavers from the north and northwest, an absolutist religious group which proceeds unswervingly on the basis of a rigid orthodoxy.

The situation is somewhat similar at Ahmedabad, a city of 275,000 where the people within a radius of several miles find employment in its eighty mills. Here also many are from the cultivating caste and hail from the lands of the Rajput warriors—semi-desert areas which produce a more militant type. Hindus who dwell in proximity to Mohammedans tend to be influenced by them and vice versa. The colder winters, the desert and the Mohammedan contacts have put iron into the blood of the *Gujerati.*

The Bengal jute mills depend more on imported labor, drawing some from their own province, many from Bihar and Orissa, and smaller, but still large numbers, from more distant regions such as the United Provinces, Central Provinces, Madras and Punjab. This means the mixing of many races, religions, languages and castes. Large groups not only have no confidence in one another, but their languages create another Babel. The same is, to a less extent, true of Jamshedpur, the great steel center. In Madras, Nagpur, Cawnpore and Agra, the situation again differs. Since industry is not greatly developed in any of these centers, labor is plentiful and its conditions approximate more closely those of the first decades of Indian factory industry. In the four last-named centers, there is considerable homogeneity, but a larger proportion of the workers is from the untouchable caste, and they are naturally retiring. In Madras the *Panchamas* bulk large while in Nagpur, the *Mahars,* and in Cawnpore and Agra, the *Chamars*—the counterpart of that caste—are in the majority.

Second, the prevailing type of employer and higher staff also makes a great difference in the ease with which unionism can develop. In this respect also Bombay and Ahmedabad have furnished the most favorable opportunity. The most numerous single class of employers in those centers is the Parsee group, which forms a bridge between the British and the pure Indian groups. Parsees are in close contact with both cultures. The prestige and remoteness of the Government and the Army carries over to the British business man, especially to the big business man (the *burrah sa'ab*), and this together with his usual ignorance of the fundamental elements of Indian life makes a great gap between him and his workers. There

is no arguing with *him*. The worker takes orders or leaves. Among the Parsees there is more understanding of the worker's viewpoint. The Parsee has influenced the Hindu and Mohammedan employers except in those cases in which they were already familiar with European labor practices.

The assistants in the mills also have had a great influence. More and more the Parsees have taken over from the Lancashire men the posts of foremen and masters thus opening up direct connection between the workers and the head office. The Parsees know the language of the workers as well as their psychology and, while it is said that there are no poor Parsees, many of these intermediate officials share the actual economic and family problems of the laborers and sympathize keenly with them. Parsees have spread from Bombay to Ahmedabad and Nagpur and their influence has radiated with their dispersion.

In Bengal the situation has been entirely different. Employers in all the industries there have been predominantly British, mainly Scotsmen. Especially in the most important industry, jute, the supervisors also are Scotch. There is one such supervisor to about 250 Indian workmen. Until 1911, Calcutta was the center of government and more than any other place carries still the tradition of white superiority.[70] To some extent, the attitude of aloofness and superiority which has characterized government officials has been assumed even by these overseers. They have been closer to the workers than their employers could be, but their sympathy and their success have been so bound up with the employers' interest that they have provided no medium by which workers' grievances might secure a hearing. They act rather as a buffer, an obstacle to dam up every little spring of discontent at its source. Most of these men, as well as most of their employers, although there are notable exceptions in both groups, easily adopt the common attitude towards the Oriental. "He is different, he always has been different, he doesn't like what we like and there's no use trying to understand him. He is happy on low wages and long hours, and if you try to change these things you'll make him much less happy than he is." Such is the usual refrain in spite of workers' demands for an eight-hour day and a minimum wage.

In Jamshedpur a combination of ultimate control of Parsees and

[70] This is becoming less prominent in New Delhi.

immediate management by Americans has not lent itself to steady union growth. There have also been many British foremen, but the Americans have dominated. The union movement has been irregular and long unsuccessful, strangely like its counterpart in the American iron and steel industry. In 1929, about half the workers were in unions. The bosses are essentially democrats in the American sense and are as approachable as need be, but they are impatient of interference by the workers and lay great stress upon individualism and personal efficiency. The American manager who weathered the War and early post-War years had worked up from a shovel boy to the top and, in true American fashion, he seemed to expect every coolie in the place to work as though similar opportunity were open to him.

In both Madras and Cawnpore, with a low grade labor supply exceeding the demand, and Europeans as the leading employers, the strongly aloof attitude has, with a few exceptions, prevailed. Unionism has developed little. It is only incipient also in Sholapur and Nagpur, having, even with Parsee and Indian managers, a rough road, owing mainly to the large labor supply and partly to the type of leaders available.

Third, the character of the leadership has been of the greatest importance. The most effective union and the most satisfactory labor conditions are to be found at Ahmedabad where Miss Anasuya Sarabhai and Mr. Gandhi have dominated the situation. Ability, reliability, and deep sympathy with unfortunate workers placed these people in a group apart. The second most successful movement was at Bombay under the leadership of certain members of the Servants of India Society. But their control was never so complete and they had no such commanding figure behind them as Gandhi. The radical leadership went over to Communism and allowed the movement to degenerate into a morass of religious fanaticism, strife and murder. In the jute mills of Calcutta the leaders changed more frequently, were in less complete control and less successful.

Fourth, the type of industry has exercised relatively little influence on unionization. It might be expected that unions would succeed in those kinds of work in which a permanent and highly skilled labor force is employed. Such industries as engineering should provide conditions favorable to union growth. But in fact this has not

been true, apparently because there have seldom been large numbers of engineering hands in a small area. The largest engineering works have been connected with the railways, either owned or largely influenced by the government. Unionism was rather slow developing in these shops, probably because it was feared that the government would be hostile; but now railway and railway-shop unions bulk very large in the general labor movement.

Strangely enough, unionism has found one of its best developments entirely outside the factory proper, in various forms of government service, which finally has come to include the majority of the railways. Postmen, telegraphers, Port Trust employees, even street sweepers, embrace unionism much more readily than do factory hands. In January 1934, about 45 per cent of the union members in Bombay Presidency were railwaymen or seamen, while another ten per cent were postmen, telegraphers and other governmental or municipal employees. These workers apparently consider their jobs permanent, and while their unionism is more professional than rebellious they possess a highly developed sense of group solidarity.

Trade unionism is still in the experimental stage, its every feature in a state of flux. The government's attitude, exemplified in the Trade Unions Act, has been distinctly favorable. Registration gives a union recognized legal existence and employers are impelled to recognize such bodies. Responsible leaders are gradually appearing; there is no reason why healthy unionism should not continue to grow. The laborers, moreover, have learned that union is possible and that it does achieve results. While the past decade has been turbulent, it has not been chaotic; the future seems hopeful.

Labor Legislation. India has more advanced factory legislation than any other Asiatic country, adopted partly under pressure from Indian and English philanthropists and partly at the behest of Lancashire, lest lack of labor regulation should result in embarrassing competition. Agitation began in England in the 1870's and the first act was passed in 1881 against great opposition from the factory owners and many government officials, especially in Bengal, notably from the Lieutenant-Governor. The law required inspection and fencing of machinery, and forbade the employment of children between seven and twelve years of age for more than nine hours a day. But as it applied only to concerns employing 100 or more

laborers and did not affect the gins and presses which were classed as seasonal factories, and as there were no birth certificates and wholly inadequate medical inspection, it made little difference in conditions.

The law was enforced strictly only in Bombay Presidency, where both the local government and an influential section of Indian opinion had urged more far-reaching legislation. Bombay secured the services of a trained English factory inspector while the Bengal governor stated in debate [71] that everybody on his side of India "had the strongest possible objection to the appointment of a special officer as an inspector." The natural result in Bengal, therefore, was a very haphazard enforcement by untrained persons knowing nothing of the business. While some factory owners were put to much needless trouble and expense, matters of prime importance were left undone.[72] Again it had been demonstrated that inspection and enforcement are far more important than mere enactment.

Agitation for a more thoroughgoing law immediately began. After further investigations, especially in Bombay Presidency, a new Act (XI of 1891) was passed. Partly because of Lancashire activity this was much more inclusive, covering all factories employing fifty or more workers. It raised the upper limit of children's ages to fourteen, limited their hours to seven instead of nine per day and required these to be during daylight, provided a noon stoppage of half an hour and a weekly holiday. Women's hours were restricted to eleven per day with 1½ hours off at noon. Night work was also prohibited for women, although those most needing protection, the women in the gins, were still excluded on the ground that they were seasonal employees.

Unfortunately inspection was again not properly provided for. In fact, factories were so few and scattered over such wide areas that the provision of highly trained inspectors, spending much of their time in travel, would have been very expensive. It was urged, also, that the movements of an inspector would be very carefully watched and that "surprise visits" would be almost impossible. As a compromise the task was again left in the main to the local magistrate or assistant magistrate with technical assistance from a man who covered a very wide area. Enquiries showed that many of

[71] Clow, *Bulletin of Indian Industries and Labor*, No. 37, p. 12.
[72] See Inspector Jones's Report, *Parl. Papers*, 1888, Cmd. 5328, p. 114.

these "collectors" or "magistrates"—officials in charge of districts—knew nothing about the duties of a factory inspector and that they were quite out of touch with conditions in the factories they were supposed to inspect.[73] Inspection by untrained officials was long one of the weakest features of Indian factory legislation. Of it Lovat Fraser writes: [74]

At the beginning of 1905 the system of factory inspection in India had partly broken down. There was a Factory Act, but in certain respects it had become almost a dead letter. The Government were meticulous in insisting upon the fencing of machinery, but seemed to think that their responsibility ended at that point. In the City of Bombay there were 79 cotton mills, employing a daily average of 114,000 people; yet every officer associated with the inspection of the Bombay factories had many other things to do. The "Chief Inspector of Factories" was the Assistant Collector, usually a young civil servant. In 1905 the post was held by six different men, all inexperienced, and generally indisposed to regard factory inspection as a serious part of their manifold duties. The single whole-time factory inspector was chiefly employed in checking produce under the Cotton Excise Act, for the Government carefully looked after their dues. The surgeons who were supposed to certify the ages of children employed in factories could give very little time to the work, which was perfunctorily done. The officer upon whom devolved the important task of inspecting the sanitary condition of the mills, their water-supply and ventilation, and above all, the observance of the laws about children, was a functionary styled "the Personal Assistant to the Surgeon-General." He was a sort of private secretary, whose principal task was to keep the medical stores of the province; and the idea that, in addition to his normal duties, he could inspect 79 huge cotton mills, and many other factories, spread over an area of several square miles, was ludicrous. It was only natural that under such a system the provisions of the Factory Act were systematically evaded. In Calcutta the failure of factory inspection, and the evils which followed in its train, were even more apparent. One Calcutta mill manager frankly admitted to the second Factory Labour Commission that he had taken no notice of the Factory Act. Another manager elsewhere, whose mill employed nearly 400 children, actually affirmed that he had never heard of a Factory Act imposing restrictions on child labour; and I can quite believe it.

Where the inspector was efficient conditions were fairly good; but in most places outside Bombay the situation continued about as before. Perhaps the worst feature was the employment of children

[73] See *Evidence* before the Factory Labor Commission of 1908, *Parl. Papers*, 1909, Cmd. 4519.

[74] Lovat Fraser, *India under Curzon and After*, pp. 330–1.

over-time and below the legal age in the cotton and jute mills. The Factory Labor Commission conducted in 1908 much the most thorough investigation yet made into factory employment and found conditions very unsatisfactory. Yet their report was mild. Fortunately Dr. Nair, a Hindu physician, and member of the commission, dissented strongly and urged more drastic legislation. After much discussion a new Act,[75] based largely on his recommendation, was passed in 1911.

The point in this bill which aroused most opposition was the restriction of hours for men in textile factories to twelve per day. Even the Commission had been shocked by this principle "which had not been accepted elsewhere." The law, however, applied only to concerns employing 50 or more persons and made no great change in working conditions of women.

In the cotton and jute mills, women had never been employed on night shifts and their work was mainly in the winding departments which worked independently of the rest of the mill. Moreover, their hours had been reduced to eleven, twenty years earlier. The ginning and pressing mills were excluded and a formula which gave rise to terrible conditions was recognized—the "simultaneous shift." Women were to be employed in numbers sufficient in the opinion of the inspector "to make the hours of employment of each woman not more than eleven in any one day." [76] On this point, Dr. Nair had been defeated. Of course the ex-officio inspector had no basis of judgment except the numbers on the list and those who might be mustered on his occasional visits. There was no danger that women workers anxious to hold their positions would complain to him. Dr. Nair made something of a "hit" by reducing the formula to absurdity. He suggested that it read $X = W - (S + R)$,[77]

where W represents the women who ought to be available for work, S represents the number of sweepers who are put on the register but never work in the gins, R represents the female relations of the *mukhadamie* (forewoman) who are also put on the register but who have not the remotest intention of working in the gins, and X the number of women who are sweated to keep the factory going for 16 to 17 hours.

All workers in textile factories (gins and several others excluded) were guaranteed a half-hour rest period after six hours of

[75] Act XII of 1911.
[76] Chap. IV., Art. 27.
[77] *Report. Parl. Papers*, 1908, Cmd. 4292, pp. 108–9.

work. The position of children was much improved. The age limits were left unchanged at nine to twelve but their daily hours in textile mills were reduced to six. Since 1891 it had been unlawful to employ them before 5:30 A.M. or after 8 P.M. The evening hour was now advanced to seven. Most important of all, arrangements for inspection and enforcement were far more rigid. Certificates of age from qualified physicians were required and governments were taking inspection seriously. In fact there was no great difficulty in enforcing this law. Two children furnished one hand for a full day, and many manufacturers were convinced that the 12 hour day was more economical than a longer one. Adjustment to shorter hours was also made easier by a convenient trade depression.

Then came the World War, the great increase in factory labor and the various types of agitation for betterment. Labor, barely as yet "articulate," was beginning to demand something for itself. India was represented at the Washington Labor Conference in 1919 and acknowledged by the League of Nations as one of the great industrial countries. The proposals of the Washington Conference for India were:

(1) The sixty hour week.
(2) Prohibition of night-work for women and for children under 14 years.
(3) Exclusion of children under 12 years from all factories using mechanical power and employing over ten persons.

This seemed a rapid advance. But public opinion had traveled far and these provisions, together with some others, were embodied in amendments to the Act in 1922. Children were now required to be twelve instead of nine years of age and they could not take on adult labor until they were fifteen. Hours of adults were cut to sixty per week, and eleven per day, and of children to six per day with a rest period after four hours. Since nearly all factories now adopted the ten hour day, most children were employed as real "half-timers," that is, for only five hours. With the enforcement of this law the employment of children is declining.

The recent Royal Commission on Labour in India made elaborate recommendations regarding the Factory Act and in 1933 the government introduced far-reaching changes which make regulation more rigid and effective.[78] Hours of adults were reduced to 54 per

[78] *The Bombay Labour Gazette,* Sept., 1933, pp. 30–57.

week and safeguards against the employment of children and the overlapping of shifts were included. Penalties for infringement were made more specific and arrangements for inspection more complete.

In factory legislation India has made really remarkable advance during the fifty years since the first Act was under discussion. The first steps and many of the later ones were inspired in part by the selfish interests of Manchester, but Indian public opinion has come to accept such legislation as natural and necessary. While the earlier laws had a certain amount of intelligent Indian support, those passed before the Act of 1922 were largely forced through by the central government. In 1922, with the reformed legislature, however, there was good support from the India community.

Conditions of work have been drastically changed. Formerly the merest infants toddled about machinery for 12 or 15 hours, possibly with no stoppage for meals; now all children under 12 years are excluded. No longer may women or men be employed for days and nights in cotton gins for a week at a time. Nor may they be employed, with a few exceptions, according to the "Khandesh Formula" in job lots with a haphazard division of work.

Besides legislation regarding hours and factory conditions, various other labor measures have been adopted since the World War. One was the Trade Unions Act of 1926, already mentioned, in which unions are invited but not compelled to register with the government. They are required to report the results of their business operations and to submit to an audit arranged by the government. Under this law unions are not only granted immunity from both civil and criminal prosecution for activity in trade disputes [79] but are in a somewhat stronger position both with the government and with the employers. A number of government appointments are now open to labor men, and officials of registered unions are more likely to be considered.

In 1923 a Workmen's Compensation Act, including practically all the employees in factories, mines and railways, was adopted. Under the Fatal Accident Act, passed in 1885, it had been impossible for a worker or his family to collect anything for accidental injury except in case of death,[80] and since the poor workman's family must sue, this law had remained practically a dead letter.[81]

[79] This position was gained for British Trade Unions in part by the repeal of the Combination Acts in 1824 but specifically only by the Trades Disputes Act of 1906.
[80] Lady Chatterjee, quoted by Anstey in *Economic Development of India*, p. 307.
[81] See Ahmad Mukhtar, *Factory Labor in India*, p. 71.

Strangely enough the very first demand of an Indian labor group, that of the "Bombay Mill-hands Association" to the Bombay Labour Commission in 1884, mentioned this matter.[82]

The Act of 1923 (No. VIII) is aimed to meet this situation as the British Workmen's Compensation Act of 1906 does in the United Kingdom. The act provides for both accidents and occupational diseases, and in view of the interdependence of family groups, compensation is fairly generous. In case of the death of an adult workman his relatives receive 2500 rupees or thirty months' wages, if that is less. For total disability the compensation is 3500 rupees or 42 months' wages, if that is less. For lesser injuries the payment varies from five per cent of the total disability payment for the loss of any finger, to 70 per cent for loss of the right arm above the elbow.[83]

The Act provides that questions shall not come before the Commissioners provided under it [84] "unless and until some question has arisen between the parties in connection therewith which they have been unable to settle by agreement." Injured workers have so far made little use of the provisions, partly no doubt, because they deem it better to accept what is offered than to enter litigation, and partly because of their fatalist attitude. Labor leaders are now awakening workers to their rights under the Act. Indeed in some centers, notably Bombay, the practice of advancing dubious claims seems as well developed as in occidental countries. Many people, however, do not know that such a law exists and therefore fail to make any claim. As the relatives of migratory Indian labor often cannot be located, moneys paid over to commissioners are sometimes returned to the employers. In a tea-garden district in Assam in the last half of 1924, Rs. 1,397.5 were thus returned.[85]

The large number of disrupting strikes resulted in the passing of the Trades Disputes Act (VII of 1929),[86] which provides machinery for the settlement of disputes. Courts of Enquiry or Boards of Conciliation are appointed by the governor of a province or, in certain cases, by the Viceroy in Council. The appointing authority uses his own judgment as to which type of body is required unless both parties to the dispute request a particular kind.

[82] *Parl. Papers,* 1888, LXXVII, No. 321, p. 10. See above, p. 420.
[83] Schedule I.
[84] Sec. 22, (1).
[85] Mukhtar, *Factory Labor in India,* 1930, p. 83.
[86] For provisions, see *Bombay Labour Gazette,* April, 1929, p. 764.

The Act also has a political aspect in that it undertakes to declare certain kinds of strikes illegal, especially those in the nature of a general strike. Strikes on public utility services without notice of at least two weeks are illegal and punishable by fine or imprisonment or both.

Under this Act a Court of Enquiry was appointed for a general strike in the Bombay cotton mills in 1929. It issued a comprehensive report and made certain recommendations [87] which should be of great value in the general relations between employers and employees in this industry. Yet an almost equally violent general strike occurred the following summer in the same industry and city.

While employers were at first opposed to factory legislation as contrary to their interests, they have come to favor it. The labor movement in India inclines toward a considerable degree of violence and employers are anxious to find some regular means of dealing with it. The earlier policies of first ignoring, then smashing, organized labor have now been supplanted by the method of negotiation; both labor and capital are willing that the government should provide umpires and machinery for this more orderly contest. The trade union and the developed technique for handling labor disputes and lesser labor problems have been among the most valuable inheritances which India has acquired through her connection with the United Kingdom.

[87] See *The Fawcett Report*, Bombay Government Press, 1920.

CHAPTER XIX

THE BRITISH IN INDIA

BRITISH sovereignty over India has brought East and West into their most intimate and continuous relationship. Neither commercial intercourse nor missionary enterprise has brought the two civilizations into such close contact. The Asiatics have been free to hold aloof from these latter spheres of activity, but hundreds of millions have been forced by taxation and police power to accept protection from and obey the orders of European administrators. The results of government are so far-reaching that any groups which presume to perform its functions are universally required to justify their holding of such power. This is especially true when one people is governed by aliens from a distant land. No problem touching India has recently attracted so much attention or been fraught with such possibilities for good or ill as has the question of British rule. The modern economic problems of India cannot be discussed without some reference to the influence upon them of the British government. Our immediate problem is that of the influence of the government upon the growth of modern industry.

Readers of the above chapters will probably feel that the results of Indian industrialization have been disappointing. Here was a country with all the crude elements upon which manufacturing depends, yet during more than a century it has imported factory-made goods in large quantities and has developed only a few of the simplest industries for which machinery and organization had been highly perfected in other countries. With abundant supplies of raw cotton, raw jute, easily mined coal, easily mined and exceptionally high-grade iron ore; with a redundant population often starving because of lack of profitable employment; with a hoard of gold and silver second perhaps to that of no other country in the world, and with access through the British government to a money market which was lending large quantities of capital to the entire world; with an opening under their own flag for British business leaders

who were developing both at home and in numerous new countries all sorts of capitalistic industries; with an excellent market within her own borders and near at hand in which others were selling great quantities of manufactures; with all these advantages, India, after a century, was supporting only about two per cent of her population by factory industry.

The country remains overwhelmingly agricultural. The proportion of people living in urban districts has been only slightly augmented and a large share of the newcomers are temporary sojourners whose roots are still in the village. Large as are the few industrial centers, factories furnish direct support for a smaller group than was supported by handicraft before the factory appeared. The country is still annually importing far more manufactures than it exports. While the proportions are gradually changing, Indian economic life is still characterized by the export of raw materials and the import of manufactures. In spite of her factories and her low standard of living, India is less nearly self-sufficient in manufactured products than she was a century ago.

To what extent have these meagre results been the outcome of deficiencies in the Indian environment, the Indian character and Indian social and economic institutions? And to what extent has the British occupation of India contributed? This is an almost unanswerable question because so many and such complex influences have been at work. Yet, so important and so dominating is this question in the affairs of India that its discussion is imperatively demanded. The imponderables must somehow be weighed and a tentative balance arrived at.

In the first place it is necessary to know why the British rule India; how they at one time began and why they have continued.

Often this is attributed solely to the imperialistic designs of an aggressive and unethical nation which first conquered and then more or less enslaved a weaker and more peaceful neighbor. Sometimes it is credited to an altruistic impulse by a Christian nation to take up "the white man's burden" and promote the welfare of a people who were suffering under two great misfortunes—an unjust social system which consigned the many to a degrading subjection by the few, and the ravages of brigands in a country whose government had disintegrated. Again it is sometimes stated that the interest of the United Kingdom in India has been purely economic. One

aspect of this view is that it is wholly legitimate, a desire to buy and sell and, perhaps, produce. Another aspect is that of economic exploitation; that Britain rules India in order to guarantee to her own over-crowded people a supply of food and raw materials, to keep for them first place in the great Indian market for manufactures, to secure investment for British capital and to provide profitable employment either in administration or in some auxiliary organization, such as the Indian army, for a large number of British people. In fact, of course, no one of these motives accounts for British rule; yet each has been operative at some time and to some degree. Conditions have been complex and the motives for British rule have been very mixed, and very fluctuating. Obviously the chief rôle has been played by the self-interest of individuals and of a nation, taking many forms, some of them enlightened and beneficent and some exploitative.

The British went to India as a small European nation endeavoring to profit from the trade arising with the new Commercial Revolution. In this her tactics were like those of her contemporaries. Owing to dangers from piracy, traders were compelled to arm and to have governmental backing. This introduced a degree of political control but in Asia this was for a long while over-shadowed by economic interest. Rivalry among European nations led to armed violence. European nationals used every excuse for plundering each other. The natives also suffered. It was necessary for every vessel to be armed and for trading stations to be fortified.

Meanwhile, India, like much of Europe, was made up of feudal states and chieftanships over many of which a larger and more powerful dynasty held sway. During the eighteenth century this dominating power in India weakened and a long period of brigandage and feudal warfare ensued. The business of foreign merchants became in still greater need of protection and not infrequently their forces clashed with local contenders for power. From this mêlée of legitimate self-protection and plunder, which encouraged the growth of imperialist designs, the British forces under the East India Company emerged as the paramount power in the country. It must be kept in mind that this dominant position was not wrested from a peaceful, honest and efficient government. Generally power was wrested from groups who at best were hopelessly inefficient and who generally ruled only because of their temporarily superior

military power. There is no evidence that the Indian people suffered immediately by the change. Indeed, as the British power was consolidated, the better order preserved was to them a distinct advantage.

The British went to India in the spirit of their time. Their primary interest was in trade, which at the time required considerable armed protection. Doubtless, in the spirit of the time, they were ready to use that limited force for advantage of any sort; but it was only because of Indian incapacity and disunion that they were in the first place compelled to protect their own interests with force and finally that their small contingents enabled them to become rulers. Indians, being what they were in the eighteenth century, had allowed their country to drift into the hands of rulers of their own race who were weak, inefficient and dishonest, and they have paid the logical penalty. In fact Indian society was so riddled with cultural and social barriers and Indian thought was so permeated with superstition and ignorant prejudice against other lands and peoples that it could not possibly produce a good government. From the viewpoint of modern democracy, the world is outraged when an outside power undertakes to rule any people, yet from the viewpoint of historical fact, no country of strategic importance either in resources or position, which has been undermined by inefficiency, superstition and contempt for other races and cultures, can hope to remain long its own master. The British came to India, not because they were thirsty for political power but because they were anxious to engage in normal trade. Because of Indian inability to maintain such order as was essential to trade, the traders were forced to protect themselves and ultimately to govern. Britishers had occupied an important place in Indian economic affairs for a century and a half before they acquired political power. It is doubtful if any non-popular government of the time attained its power more legitimately.

Though their first conquest which led to the assumption of governing powers occurred at Plassey in 1757 and the Company continued to extend its power, it remained primarily a commercial organization with a monopoly of (British) Eastern trade until 1813. This trade was then thrown open to other British merchants and in 1833 the East India Company ceased trading altogether. The government established by the Company was a branch of that great

trading concern and its officials were Company employees. It was moved by motives primarily fiscal and profit-making in character, not primarily social. The chief task was the collection of revenue by the civil officers and the "investment" of this revenue by the commercial officers in enterprises which would increase it. The impression made upon the people was aptly expressed by their custom of referring to these men as the "destroyers" and the "preservers" respectively. There were many unfortunate instances of unfair and cruel practices on the part of Company employees and others under their protection, particularly in connection with indigo production.

The acquisition of governing power occurred when England was in the midst of a world-encompassing contest with France and also on the eve of a great transformation due to the development of the factory system. This gave the setting and the impetus for the idea of Empire which developed parallel to a great need for supplies of raw material and markets for the English factories. As British interests grew in importance a more effective government was demanded. Finally in 1857, the great Mutiny occurred and it was decided to set up a new government directly under the British crown. This is the present British government of India which came into power at about the time that India began to turn to the building of factories and during the sway of which industrialization might have been expected to occur.

The first task of this government was to reorganize the chaotic political life of the country. Its second task was surely to improve the country's economic system and raise the standard of living. The most outstanding feature of the peoples' economy was their poverty, due in part to a fickle climate and over-population, but also to unproductive traditional agriculture and to a primitive handicraft system. In the midst of great quantities of raw materials and food supplies, Indian families by the million were starving for lack of remunerative employment. No people were ever more in need of having better sources of income opened to them, and no people were better fitted to introduce these things than were the English. Yet economic progress was slow.

Any judgment about this government involves a conjecture as to the alternative. In maintaining peace, unifying the country, developing communications, and in setting up a standard of integrity and industry, it has accomplished more than could have been expected

of any other government, Indian or foreign, during this period. As governing groups go, that which took over affairs in India was very exceptional. It came from that western country which was most advanced both politically and economically. The English had led in the establishment of popular government, and in the creation and control of the new system of manufacture. The men of no other country had finer political training or showed higher conceptions of public duty than the English; and no other country had been so successful in raising economic efficiency by the application of power to manufacture and transport, and by large scale business and financial organization.

Yet it must be admitted that the new government was in fact not well-fitted for the chief task of bringing about an economic reorganization. In spite of its many virtues, it had serious limitations.

In the first place, the barrier between this alien government and the people was even greater than that between the earlier conquerors of India and the Indian people. The Mogul government, sharply as it differed in religion, was, after all, Asiatic. With a considerable number of exceptions, the European officials have not understood or appreciated the Indian people. The representative of the "untouchables"—the very people whom the British have finally undertaken to protect—described this defect accurately in the 1930 Round Table Conference in London, when he said that "there is an internal limitation which arises from the character, motives and interests of those who are in power which prevents them from sympathizing with the living forces operating in our society." [1]

This lack of appreciation is not peculiar to the Indian situation but is true of every oriental country into which Europeans or Americans have come to live, including China, Korea, and Japan. Even missionaries, whose work makes personal contact and confidence necessary, feel impelled to spend a considerable part of their lives in an atmosphere like that "back home." For this reason the Britisher in India continues to use English clothes and English furniture, to read English books and papers, and to speak the English language. When the day's work is done he goes to his English club, where Indians are usually allowed only as servants,[2] and smokes, drinks, eats, plays and talks British things with British people. Though it is

[1] *Parl. Papers*, 1931, Cmd. 3778, p. 133.

[2] There are now a few exceptions to this rule in favor of a few special persons in the less important clubs.

his business to know the Indian people intimately, the British official generally keeps them as far away as possible.

This attitude is by no means confined to one side. The records are full of similar attitudes on the part of the various Asiatic peoples. China and Japan kept the early western merchants as virtual prisoners lest their own people be defiled by contact; and they were forced into trade only at the cannon's mouth. Nowhere was the feeling of superiority more deep-seated and serene than amongst the Mandarins of China, the Samurai of Japan, and especially the Brahmans of India. To this feeling of superiority, the Indian joined a caste and religious system which was almost impossible to overcome. The result is that as a group neither rulers nor ruled regard the other with understanding or affection.

With its lack of understanding of the Indian character, the government has feared to launch any plans for economic or social improvement. The same representative of the "untouchables" said, also at the 1930 Round Table Conference: [3]

> There certainly is no fundamental change in our position. Indeed so far as we are concerned, the British Government has accepted the social arrangements as it found them. . . . Our wrongs have remained as open sores and have not been righted, although 150 years of British rule have rolled away.
>
> We do not accuse the British of indifference or lack of sympathy, but we do find they are quite incompetent to tackle our problems. . . . It [the government] has not dared to touch any of these evils because . . . it is afraid its intervention to amend the existing code of social and economic life would give rise to resistance. Of what good is such a government to anybody?

One of the most ably edited British newspapers in the East recently stated that "the promise to respect 'religion' has done more than anything else to hinder the improvement of conditions in India." [4] The Government has acted on the old belief that the Indian's nature is fundamentally different and that he does not want improvement. With a few exceptions, such as suttee,[5] economic and social practices have been left severely alone. The greater progress of the Japanese has been due in no small degree to the fact that not only did the people trust its government but also the govern-

[3] *Ibid.*, p. 133.
[4] *Japan Weekly Chronicle*, Oct. 2, 1930.
[5] The burning alive of the wife, partially of her own volition, upon the bier of her husband.

ment understood and believed in its people. It knew what to attack and what to propose, and when and how.

The failure to understand and appreciate has, of course, been mutual. What the government does in favor of the country is likely to be misinterpreted and few Indians see in the British anything but selfish conquerors.

Another unfortunate feature is the Anglo-Saxon's attitude towards persons of color. While India contains many of the purest Aryans in the world, the white men who claim to be of the same stock look down upon them because of pigmentation. The Indian is as much aware of the existence of the color line as is the American Negro. This attitude is not peculiar to Englishmen but is common to North Europeans and to Americans. The English are more tolerant in this respect than Americans but the color-line has been a great obstacle to their success in the administration of India.

Another obstacle has been the easily assumed attitude of an outside ruling race. Britishers long prided themselves upon ruling India by moral prestige. The moral prestige of the Crown government was long high; yet it was always backed by military power, which over a timid and scattered peasantry need not be large. When the rule of a clearly differentiated group, like the Europeans in India, has been imposed and firmly established, its members readily assume superiority and some of them misuse it. The famous governor-general, Warren Hastings, remarked this trait in his countrymen. "The Englishman," he said, "is quite a different character in India; the name of an Englishman is both his protection and a sanction for offences which he would not dare to commit at home." [6]

This attitude has not disappeared with time, and is very noticeable to any outsider. The Right Hon. E. S. Montagu, a recent Secretary of State for India, wrote of it in his diary: "We (Lord Ronaldshay and himself) found ourselves much in agreement about the fact that it is British ascendency and subject race feeling which is at the bottom of everything." [7]

Nor is this peculiar to Englishmen. The Japanese take a similar attitude in Korea and Formosa and the Americans in the Philippines. While not absent from the conduct of many officials this over-

[6] Quoted by Dutt in *Economic History of India*, p. 265.
[7] *An Indian Diary*, p. 75.

bearing demeanor is seen at its worst among the less cultivated whites, travellers and business men and army people.[8] Tourists and missionaries also fall into the same congenial attitude.

There were other special difficulties due to the special training and point of view of the new governing class. In spite of their being a singularly able and high-minded group of people, the new rulers of India suffered from a gap in their training which to a certain degree unfitted them for their great task of economic reform. Though coming from the most advanced industrial country of the world, they were not trained in industry, or even conversant with its problems. They were nearly all men of aristocratic background who not only knew nothing about business but openly despised it. Like the intelligentsia of nearly all countries at the time, they had inherited the idea that no ordinary business man could be a gentleman. Officials still often refer even to British business men as "box-wallahs," a term once applied in India to pack pedlars. The great economic need of India was for practical rulers determined and able to adapt the new industrial technique to the use of her people. For this particular task a less effective group could scarcely have been found.

Unfortunately, this characteristic of the governing "caste" was matched by an even more stubborn conservatism on the part of the leading Indians. Upper class Indians, especially Brahmans, entertained the same disdain for practical industry and commerce which was held by the English. Anything that savored of material productivity or of trading for gain was strictly tabooed by these "twice born." Indeed, with the Indian, as we have already seen, these conservative ideas were reinforced by a social and religious system which was almost unbreakable. It is doubtless true that these similar standards of Englishmen and Indians increased their mutual respect but this attitude was a great deterrent to the rise of industrial leadership.

Of more direct bearing upon the economic policies adopted and upon the actual economic effect of their rule in India would be those problems growing out of conflict between the economic interests of England and India. It is on this point that students of human nature might fear most for the outcome, and it is here that Indians have

[8] Numerous typical instances of discrimination are given in a recent book by a medical officer in the Indian Army. *Must England lose India?* by Lt. Col. Osburn, D.S.O., 1929.

been most critical. Much is said in India of the way in which Indian commercial and industrial interests have been sacrificed for British. Instead of attempting to encourage and develop in India an efficient factory industry, such as was built up during the same period in the United States, Germany and Japan, the British kept India as a supplier of food and raw materials and as a market for her own great manufacturing industry.

As in so many other instances, a variety of considerations has moved the governing group in this matter. The interest of Indian industry clashed not only with the interest of the United Kingdom's industry and trade, but any policy of encouragement clashed with the British officials' theory of economic policy, *laissez faire*. The political economy which these men had learned was that which Adam Smith, Ricardo, and J. S. Mill had developed and which it is now generally conceded was largely determined by the particular conditions then prevailing in England. This doctrine became generally accepted in England even before the establishment of the Crown government in India and was accepted by educated Englishmen as a veritable axiom. It is impossible to decide how far the policy of keeping the Indian market free to imports from the outside was dictated by the government's desire to favor British industry and commerce and how far by an honest conviction that only in this way could a sound economy be produced.

The Indian often claims that the Indian market belonged to Indians and that Indian industries should have been encouraged and developed either by direct assistance or by protective tariffs; that without this their handicrafts and young factory industries were "sacrificed" to the far richer and more advanced industries of England. Upholders of the British view-point contend that legislation gave British goods no real preference in the Indian markets and admit that at least very little was done to encourage Indian industries. But this, they assert, was the result not of selfishness but of a superior theory, established by both logic and experience. But since the early British interest coincided exactly with the policy of *laissez faire* for India, and since in later years when outside competitors entered the Indian market the British policy readily shifted to one of Preference (for her own trade), the Indian has commonly concluded that self-interest rather than loyalty to a creed has been the moving consideration. He has believed the Indian government loyal

to British rather than Indian interests. This has been the most serious as well as the most insistent criticism which the Indians have made. The conviction that it is true has largely destroyed the earlier moral prestige of England's rule in India and threatens to lead to open rebellion. It underlies Mahatma Gandhi's complaint, when he declares that "much of my opposition to the Government would abate if I found that it was truly solicitous for India's economic and moral welfare." [9] The poet-philosopher Tagore, though a great admirer of many traits in the British character and of many Englishmen, is quoted as saying: [10] "As a government it is dishonest." A high-minded Brahman Christian official expresses an opinion heard frequently when he insists that the Englishman is the purest specimen of hyocrite alive; that the Englishmen have not yet even begun to think of turning over to the Indians real control, that is, the army and the purse.

Montague seems to have shared this doubt of the sincerity of the government of India, though Indians would apply this to the British Cabinet in which he was the Secretary of State for India. He wrote in his Diary, published in 1930: [11]

> In my opinion the root cause of the whole trouble was [is] the profound distrust . . . shown by the civil servants of the Indian and the Indian of the civil servant. These [British] people here, . . . living in their seclusion and in a firm belief in their superiority, are really tinkering with the subject. They are not in earnest in suggesting a fundamental reform.
>
> He [the governor of Madras] told me that he believed we ought not to talk politics to those people at all; we ought to play with them, humour them on politics, and discuss with them industrial development, education and social reform; that there is no necessity for doing anything; . . . He assured me that all respect for the government had gone; that people used to consider all officials from the Viceroy downwards, as a sort of gods not to be argued with or challenged. That had all disappeared; we were playing with fire; danger was written everywhere.

A leading Indian quotes what many of his countrymen consider a typical case of English insincerity regarding India, from speeches of Lord Birkenhead.[12] In 1925, when Secretary of State for India, Lord Birkenhead is quoted as saying:

[9] Quoted from *Young India* in the *Round Table*, London, Sept., 1924, p. 743.
[10] *The Boston Herald*, Nov. 27, 1930.
[11] *Op. cit.*, pp. 70–71, 47, 125.
[12] Quoted by C. S. Ranga Iyer, *India, Peace or War*, 1930, pp. 234–5.

We no longer talk of holding the gorgeous East in fee, we invite in a contrary sense, the diverse peoples of this continent to march side by side with us in a fruitful and harmonious partnership, which may recreate the greatest and the proudest days of Indian history. . . .

Yet in 1929, the same man is found making the following statement:

What man in this House can say that he can see in a generation, in two generations, in a hundred years, any prospect that the people of India will be in a position to assume control of the Army, the Navy, the Civil Service, and to have a Governor General who will be responsible to the Indian Government and not to any authority in this country?

To the average American this distrust of the British is hard to understand. We commonly rate British character and institutions high, doubtless partly because the British are close kin to us. We understand their language, live by their institutions, appreciate their virtues, and understand their weaknesses, since our own are similar. But we also rate ourselves higher than the American Negroes rate us; and we are less conscious of the flaws in Christian culture than are the Jews or the Chinese. Every civilization is full of inconsistencies and the outsiders, especially if they happen to be of a different color and a subject race, see them most clearly.

The extreme distrust of the English by Indians is of recent origin and has been largely stimulated by the growing clash of economic interests. Yet, long before *laissez faire* had passed from the realm of economic theory to that of practical political philosophy in England, a few dissenting voices were heard concerning its effect on India. As early as 1829 an article in the *John Bull* magazine suggested the encouragement of factories there, arguing that since power manufactures from Europe and America were ruining the weavers of India,[18]

Would it not . . . be a truly patriotic scheme to introduce and encourage the establishment of this machinery in Hindoostan? . . . We should like to know what our reformers say to this. Are they afraid of the main pillar of their arguments for a free trade, the enormous exportation from England to India of manufactured cotton goods, giving way, and bringing down the whole fabric? Perhaps they are prepared to show us, on the most received principles of modern political economy, that England will be no loser should this revolution occur. We shall be most

[18] Quoted in the *Asiatic Journal*, Sept., 1829, p. 340.

happy to be convinced of this; but in the meantime, we are looking to the prosperity of India, and devising means to save her industry from the ruin with which the more fortunate circumstances of other countries are threatening it.

This was nearly thirty years before the Crown government was set up, and meanwhile, the dominant interest was not in the development of Indian industries, but in the Indian market for English manufacturers. Half a century elapsed before there was a definite proposal by a responsible body for the development of Indian industry; and nearly a full century had passed before the rulers of India became really active in the development of a few manufactures.

The Famine Commission of 1880 was struck by [14] "the unfortunate circumstances that agriculture forms almost the sole occupation of the mass of the population, and that no remedy for present evils can be complete which does not include the introduction of a diversity of occupations." Observing fortunate results from state encouragement of the tea industry and especially from state action in railway development, it suggested [15] "the manufacture and refining of sugar; the tanning of hides; the manufacture of fabrics of cotton, wool, and silk; the preparation of fibres of other sorts, and of tobacco; the manufacture of paper, pottery, glass, soap, oils and candles" and thought that these manufactures "might be expected to find enlarged sales, or could take the place of similar articles now imported from foreign countries." Yet this Commission considered it "almost self-evident that such a change . . . could not be brought about by any direct action of the State." Its recommendations went no further than the provision of wholly inadequate technical training, transportation and information.

The government did not allow these suggestions to go entirely unheeded. A few preliminary steps were taken, such as the studies made by Sir George Watt, who was given the title of Reporter on Economic Products. Also a series of monographs dealing with certain handicraft industries in some of the provinces was written, but these had as much relation to British commerce as to Indian industry. Until the end of the World War, government action was limited to "a very imperfect provision of technical and industrial education and the collection and dissemination of commercial and industrial

[14] *Report*, Part II, *Parl. Papers*, 1880, LII, Cmd. 2735, Ch. VI, Sec. 1.
[15] *Ibid.*

information. . . . All that was done was due rather to a few far-sighted individual officers than to any considered and general policy on the part of the Government." [16] One such officer was Mr. (now Sir) Alfred Chatterton, a professor of engineering in Madras. Among other things he conceived the idea during the "nineties" of producing aluminum by water-power and making utensils.[17] He applied for government aid and was finally allowed to proceed at his own expense. (The grant was given later.) In 1900, the aluminum project was turned over to a private company, at a net profit to the government of about Rs. 60,000. In the United Provinces a few experiments were also conducted at state expense but with little technical success and considerable financial loss.

The European commercial community in Madras took exception to the participation of the state in industry, and in 1910 the Secretary of State for India, Lord Morley, refused to allow the movement to continue. In 1899 Lord Curzon became Viceroy and extended his reforming zeal to various economic affairs. In 1905 he set up a new Department of Commerce and Industry in the central government, though it did not bring any notable change in the situaton.[18] During the World War, India's need for more home production to meet the difficulties of importation caused the government to appoint the Indian Industrial Commission. Under the fear that the entire empire might collapse, a real British interest was shown in fostering at least certain "key industries" in India. The report proposed a considerable organization for the encouragement of industries. There was to be an Imperial Department of Industries and a provincial department in each province. Provincial departments were to be under directors of industries and the head of the Imperial Department was to have control over questions of national concern and to coördinate the work of the various provincial bureaux. Rather far-reaching powers were to be exercised by the provincial departments, including the provision of technical education and the encouragement in a variety of ways of existing or potential industries. Technical information and advice, assistance in the securing of land, even government guarantee of capital, was possible. Assistance might be given in almost every phase of study,

[16] *Report of the Indian Industrial Commission, Parl. Papers,* 1919, Cmd. 51, p. 68.
[17] *Ibid.,* Appendix J.
[18] This was to some extent due to the fact that the headship was vacant much of the time, though it paid a salary in those pre-War days of over £4000, about $20,000 per year. (Lovat Fraser, *India Under Curzon and After,* p. 308.)

construction, manufacture or sale. Unfortunately, the central organization has not yet been set up and with the constitutional reforms of 1919 the provincial organization was made, along with education, one of the "transferred" subjects, and thus put in the hands of local governments responsible to elected legislatures. Unfortunately also, since the funds available have been wholly inadequate, no very important policies could be initiated. Furthermore, the encouragement of industry requires a far-reaching unified government policy concerning not only raw materials and methods of production but markets as well. In fact, it must be associated with educational policy and almost every other great national interest. It is doubtful whether the mere provincial offices set up in India will have any considerable effect.

Import Tariffs.[19] Of greater significance than the direct initiation or encouragement of industries are policies regarding import or protective tariffs. As already stated, the policy of the Indian government was long avowedly that of free trade, which maintained the Indian market as one of the most valuable outlets for British industry and trade. Only in the recent War and post-War periods, and then only in response to very urgent demands for revenue and great agitation from the Indian community, was a measure of protection granted.

The effect of this policy on the minds of Indians has been complicated by the fact that before the factory system was developed in Europe, Indian manufactures were excluded from England by means of high tariffs. At the end of the seventeenth century, English woolen and silk weavers found their home market being taken by cotton and silk goods from India. Acts passed, especially in 1700 and 1720 and remaining in force for over a century, until 1825,[20] prohibited the wearing of certain Indian goods and laid heavy taxes on others. Even in 1803, duties on Indian cotton cloths were from 20 per cent to 50 per cent of their value. In 1809 these rates were made to range from 47 per cent to 81 per cent, and as late as 1819, when English cotton fabrics, manufactured on power looms from machine-spun yarn, were already in the Bombay and Calcutta bazaars,[21] the rates were placed at 37½ and 67½ per cent *ad*

[19] See also Ch. VIII.

[20] See Hamilton, *The Trade Relations Between England and India,* pp. 100–5; also Bannerjea, *Fiscal Policy in India,* App. A.

[21] *Parl. Papers,* 1831, Affairs of the East India Company, V, p. 66.

valorem for most Indian hand-woven goods.[22] These restrictions were not peculiar to Indian goods but there was no other country then seriously competing in the British market. In India, on the other hand, though under a British government, only nominal duties were collected—roughly such as would meet the charges of foreign-trade administration.

When cotton textiles manufactured from American cotton by power machinery started to flow in great quantity from England to India, the British industrial and mercantile classes pressed for completely free access to the Indian market. In 1853, when India's first factories were being started, British merchants demanded that "at the earliest practicable period the trade to the interior of India and China be thrown open." And in the same book, the president of the Manchester Chamber of Commerce insisted that with the government of India should "be identified the cause of civilization, of justice and of Christianity." [23]

This group in English society could not be ignored and although the Crown government was compelled, in order to meet increased expenses, to raise the import duties, they were soon lowered again and India had free trade until 1892. Even after that time, rates were kept at a mere general five per cent rate until 1916. In 1903–4 English imports into India paid an average *ad valorem* duty of three per cent.[24] Only Holland taxed English goods at so low a rate. To Germany they paid twenty-five and to the United States seventy-three per cent.

The influence of Manchester capitalists is written large in Indian tariff history. They have been as anxious to preserve the Indian market for the benefit of British manufacturers, merchants, bankers and shippers as American capitalists have been to preserve the American market for themselves. To the demands of this influential group in British politics all governments have listened. Lord Curzon, who was active during this period both in England and in India, states that [25] "ever since India was ordered to abolish her customs tariff in 1875 it has been in the main in response to Lancashire pressure that the successive readjustments of this policy have been introduced."

[22] 59th of Geo. III, C. 52. See Bannerjea, *Fiscal Policy in India*, p. 253.

[23] Mackay, *Western India* (1853). Preface by Thos. Bagley, President of Manchester Chamber of Commerce. Preface, pp. vii., xv.

[24] See *Parl. Papers*, 1904, Cd. 2337.

[25] In a letter to the *London Times* of June 2, 1908.

The activity of the Manchester manufacturers continued for many years more and when in 1917 the duty on cloth was finally raised to 7½ and then in 1921 to 11 per cent, they made strenuous protests to the government in London. All the later increases in Indian protection have been opposed by them.[26] Indians, and many Englishmen, have been much incensed at this dictation from Manchester, through London. "The voice was the voice of Exeter Hall but the hand was the hand of Manchester," remarked an early member of the Indian Legislative Council.

Perhaps the most questionable item in Indian tariff history is the so-called "countervailing duty" of 3½ per cent levied on all cotton cloth made in Indian mills after 1896 as an offset to the tariff of the same amount levied on imports from that date. This was justified on the ground that the tariff was necessary to provide government funds and that Indian mills should not be allowed this degree of protection. It was vigorously attacked by Indian publicists and by a few Englishmen but the government, as usual acting in accord with the dominant British interest, refused to remove it. With the increasing dissatisfaction of the Indian leaders the government in 1916 promised, as a kind of barter for Indian loyalty in the World War, that the hated excise would be modified or removed.[27] Budget difficulties after the War made it extremely difficult for this promise to be kept and finally, after bitter attacks by Indians and after the government's prestige had been greatly weakened, the excise was removed in 1925 on an understanding with the Bombay Cotton-Mill owners that an eleven per cent cut in wages would not be enforced.

While protection has now been accepted by the Government of India and while the London government has recognized the right of the Indian government to make its own import tariffs,[28] without consulting London, this opposition of interests persists. It

[26] See *Indian Textile Journal,* March, 1931, p. 264.

[27] "His Majesty's Government . . . desire to leave the question raised by the cotton duties to be considered then, [after the war] in connection with the general fiscal policy which may be thought best for the Empire, and the share, military and financial, that has been taken by India in the present struggle." (Quoted from the government statement by Sir William Meyer in Vakil's *Financial Developments in Modern India,* p. 466.) The World War added £153,000,000 to India's debt and she sent 800,000 combatants and 400,000 non-combatants over seas. (See *Encyclopædia Britannica* 14th Ed., XII, p. 200.)

[28] In a statement by the Secretary of State to a Lancashire deputation which came to protest against India's higher import duties on cotton cloth. See *Report, Indian Fiscal Commission,* 1922, p. 4.

is constantly appearing in new form, the most active present demand being for a preferential tariff. This has been suggested periodically since Joseph Chamberlain's proposals for an Empire tariff about 1903. At that time, Lord Curzon's Indian government opposed it and Indians have vigorously fought it. Nevertheless the government has granted protection to steel manufactures and cotton, only in return for a large degree of preference to British goods. Indeed the principle has now been applied to various goods and may now be classed as an important part of the government's policy.

At one time there was agitation in Dundee against Indian jute manufacturing and Indians believe that had Dundee been as strong as Manchester, and had Indian jute manufacturing been an Indian rather than a Scottish-owned industry, it would also have been taxed. Fortunately the Scots of Calcutta took up the challenge. The Bengal Chamber of Commerce went on record as follows:[29]

> While the committee condemn the ignorance underlying the resolution of the Dundee Chamber, they do not overlook the spirit which dictated it. Put boldly, it is a claim that Parliament shall at any cost protect Dundee and similar manufacturing centers against India and the development of those industries which are beyond question indigenous to India. This claim . . . will give rise to many grievances . . . and to just and widespread discontent if India is to be met and checked at the outset of the renewal of her industrial career by such protective claims.

While national selfishness was the motive of powerful interests, it would be a gross misrepresentation to infer that all British publicists and officials were moved by this motive. The tariff policy imposed upon India fitted the prevailing economic dogma and was therefore as satisfying to the majority of the ruling classes in England, and to many Indians, intellectually, as it was to Manchester financially. As J. E. Cairnes wrote in 1885, political economy was then looked upon in England merely as "a sort of scientific rendering" of the maxim of *laissez faire*.[30] Nowhere was this view more prevalent than among the young university graduates who filled nearly all the important posts in the Indian government. So nearly universal was the acceptance of that doctrine in British intellectual circles that to oppose it seemed only to confess ignorance.

[29] Quoted from the reply of the Bengal Chamber of Commerce as published in the *Dundee Advertiser* and reproduced in the *Report of the Chief Inspector of Factories and Workshops* (for the United Kingdom), 1895, p. 233.

[30] *The Fortnightly Review*, Dec., 1871, p. 85.

Practically all educated Indians were brought up in the same faith, though a few found it possible, by taking advantage of John Stuart Mill's exception of infant industries in an undeveloped country, to be mild protectionists and still be respected.

In 1902 in a large public meeting in London an Indian [31] mentioned with great caution the unfavorable comparison between industrial developments in India and Japan, where protection was being adopted as rapidly as the Treaty Powers would permit. An Under-Secretary of State for India was in the chair and expressed the apparent conclusion of nearly all present that [32]

> every body was agreed that no stone should be left unturned to enable India to produce, as far as possible, what she now imported. But the primary consideration of the matter must not be forgotten, that India had for centuries past been an agricultural country, and he did not see how the government of any country could suddenly change all that had gone before, merely by a desire to do so.

He then closed with the hope

> that the discussion of and consideration given to those questions would not prevent the public at home from continuing to feel the same pride and confidence in our system of government of our Great Indian empire.

The timid opponents might have suggested that Japan was not being changed from an agricultural country "merely by a desire" but by definite governmental action.

Yet three men who had gone through official Service in India were ready to speak on the opposing side. One said [33] that the Indian government should follow Japan's lead and that "the native character was well adapted to the factory system," yet "almost nothing . . . had been done to restore the decaying industries of India, and launch her people on new careers." Another [34] wanted "duties to encourage Indian arts and manufactures" and insisted that the question of protection for India "should be decided, not on English grounds or by English people in England, but by the government in Calcutta in the interests of India alone." Still another, an engineer who had made a special study of iron resources in India and who had had much to do with the building of Indian railways, took a similar stand. He said: [35]

[31] Mr. Nilkanth B. Wagle.
[32] *Journal of the Society of Arts*, L, pp. 350–1.
[33] *Ibid.*, p. 351, Mr. F. H. Skrine, I.C.S.
[34] *Ibid.*, p. 352, Sir Lepel Griffin, K.C.S.I.
[35] *Ibid.*, p. 353, Sir Guilford Molesworth, K.C.I.E.

England in her dealings with India has committed the same blunder as she has committed in her dealings with Ireland. . . . She has persistently drained her resources, swamping her with English and foreign productions and instead of fostering her industries has handicapped them in every way. Everywhere in India may be seen evidence of iron manufacture crushed out by unlimited foreign competition. . . . Many attempts have been made to revive and start afresh iron industries, but they have one and all been crushed out for want of a little fostering protection. The latest attempt[86] nearly succeeded, but the modest request for a little help was sternly refused, and the company broke down. . . . Industries would never be introduced into India until they were protected, not only from foreign countries but from ourselves.

It seems impossible that intelligent men should fail to see that such professions of interest and such excuses as were given by the Under-Secretary of State for India were the hollowest kind of political twaddle. Yet this was a typical government statement for long years both before and after this time.

Almost another score of years was to pass before a movement for a mild protective policy could penetrate the stubborn official barrier of India, and then only as a result of a variety of influences, the most important of which were a recurrent annual governmental deficit, and a belief that Indian industry could contribute to imperial power. The ferment caused by the World War stirred Indians to new demands for self-determination including that of tariff making. The Montagu-Chelmsford Report on Indian Constitutional Reforms made in 1918 contained the following statement:[87]

The theoretical free-trader, we believe, hardly exists in India at present. . . . Educated Indian opinion ardently desires a tariff. . . . Whatever economic fallacy underlies his reasoning, these are his firm beliefs; and though he may be willing to concede the possibility that he is wrong, he will not readily concede that it is our business to decide the matter for him. He believes that as long as we continue to decide for him we shall decide in the interests of England and not according to his wishes; . . . so long as the people who refuse India protection are interested in manufactures with which India might compete, Indian opinion cannot bring itself to believe that the refusal is disinterested or dictated by care for the best interests of India.

In March, 1921, the Secretary of State for India recognized the right of the Indian Government to fiscal autonomy and this led in October to the appointment of the Indian Fiscal Commission whose

[86] This probably refers to the steel plant of the Bengal Iron and Steel Company.
[87] Quoted in the *Report of the Indian Fiscal Commission, Parl. Papers,* 1922, Session 2, II, Cmd. 1764, pp. 2–3.

terms of reference were "to examine with reference to all the interests concerned the tariff policy of the Government of India, including the question of the desirability of adopting the principle of Imperial Preference and to make recommendations."

The report was strongly protectionist and five Indian members presented a minute of dissent in which the demand for protective tariffs was made still stronger.[38]

> We believe that the industrial backwardness of India is in no way due to any inherent defects amongst the people of India but that it was artificially created by a continuous process of stifling, by means of a forced tariff policy, the inborn industrial genius of the people. . . . If a policy of protection had been adopted, say at least a generation ago, if the same freedom to regulate her fiscal policy had been conceded to India as was conceded to the self-governing Dominions, India would have made by this time great progress in the direction of industrialization.

Finally "discriminating protection" was adopted as a policy and was applied, as we have already seen, to steel. Other business interests, particularly cotton manufacturing, have agitated for protection, and early in 1934 rates of 50 per cent on non-British, and of 25 per cent on British, cotton goods was adopted. At last the need for revenue and the political unrest in the country have induced the government to trade very substantial protection for a considerable British preference. India is on the way to becoming a protectionist country.

Yet there is still much uncertainty about it in the minds of both Indians and Englishmen. In 1927, when the cotton manufacturers were asking for protection, some of the leading Indians in their group were speaking openly, sometimes publicly, against it. Only an occasional protectionist could be found among the British officials in India, and even members of the government which passed the acts were free-traders in private.

Even with the grant of protection, young Indians are not satisfied. They long for Indian control. It is still a *British* government in India—not one locally elected—which decides; and it depends for its life upon the government in London. Whatever the amount of Indianization, English hands still control the finances and the army. The young Indian concludes that all the talk, from the time of George III to that of George V, about the change in England's atti-

[38] *Parl. Papers*, 1922, Session 2, II, Cmd. 1764.

tude towards *helpless* colonies is mostly palaver. Until 1918, George V controlled India about as George III controlled America, namely, in the interest of British trade and industry.

As Lord Curzon stated, the old policy was dictated from Manchester, and was in direct harmony with English interests. It has been the most damaging feature of British rule. In spite of the claims of theory, Indians have seen in it only the policy of selfish conquerors. In spite of the argument that the poor peasant should be allowed to buy in the cheapest market, it has been nearly impossible to convince young Indians that Great Britain was seriously concerned for the welfare of the country. They meet the argument for a consumer's market by pointing out that a cheap market is of little use to him who has no income. A policy which leads to unemployment is hopeless. As we have already seen, the Europeans were able to outbid the Indian craftsman on two important scores. They could pay more for Indian grain and cotton than he could afford and they could sell manufactures cheaper than he could make them. Thus the farmers sold their produce abroad and bought power-manufactures from Manchester and Birmingham, while the craftsmen who had formerly been paid in food were left with neither occupation nor income.

A governing group which understood its people and really cared for their welfare should make an effort to teach them better ways of earning a living. This the Government of Japan tried to do and as a result the Japanese are about two generations in advance of India. While Indian craftsmen were literally starving, unemployed, Japanese of the same group were learning to operate modern machinery. Often this was set up by the government itself for demonstration to both capitalists and laborers; and as soon as possible the home market was preserved to the home producers. There have been anomalies in the Japanese protective system but it has "worked."

Purchase of Government Stores. Another matter which has involved the industrial interests of the two peoples and which has had an important bearing upon industrial development is that relating to the purchase of stores. These have included equipment for the considerable army; materials for modernizing a large number of cities, such as water, gas, electric and sewage systems; hospital and medical equipment and materials; steel, hardware and cement for

docks, bridges and buildings; telegraph, telephone and wireless materials; roads and bridges; and finally, the largest item of all, railway tracks, bridges, rolling-stock and buildings.

Before the World War such purchases outside the country not uncommonly amounted annually to five million pounds sterling—twenty-five million dollars—and since then sometimes fifty million dollars. The total value of stores imported during recent years are shown in the accompanying table.[39]

Year	Million Rupees	Year	Million Rupees
1917–18	139	1924–25	67
1918–19	195	1925–26	98
1919–20	137	1926–27	96
1920–21	120	1927–28	117
1921–22	163	1928–29	101
1922–23	135	1929–30	89
1923–24	95		

These constituted most of the manufactured stores used and practically all of them came from England. Especially during the World War, Indians made the claim that they were discriminated against to the advantage of manufacturers in England. They complained to the Indian Industrial Commission in 1917–18 and that body recommended that "in the interests of Indian industries a radical change should be made in the methods of purchasing in India, Government and railway stores." [40] It also stated that "the present system of local purchase by individual officers . . . requires considerable modifications." The result was the establishment of a stores department with organization for inspection in India, and branches in the principal industrial and commercial centers.

Even this small beginning met opposition. The Retrenchment Committee, appointed to find ways of balancing the budget, suggested that no expansion of the stores department be permitted but "Government decided that development must proceed, realizing that in the absence of a properly constituted Stores Department . . . it would be impossible ever to divert to the Indian mills and workshops the large indents now sent to London. Further, in their opinion, the quantities of stores at present purchased on Govern-

[39] *Statistical Abstract for British India*, 61st and 63rd numbers.
[40] *Report*, 1919, p. 127.

ment and Railway account are themselves sufficient to justify the existence of the organization." [41]

Explanations of this practice of buying in England have been to the effect that Indian manufactures were inferior or non-existent, that the best general results could be obtained in England and that it was not worth while keeping up the extra expense of inspection bureaux in other countries. There is merit in all these reasons. In many lines Indian goods were not satisfactory and, as was the case in all the other oriental countries, it was more advantageous to buy better goods abroad. During most of this period, England offered as good manufactures as could be found and at as reasonable prices. While there has doubtless been some favoritism, this practice has not been peculiar to the Indian Government, and its record in this respect is perhaps above that of the average bureaucracy.

But much more could have been done to develop Indian production. The government of Japan considered that teaching its people to work in the new ways was a part of its business and it therefore bought home-made products wherever possible. Goods which were usable but not quite up to standard finish were taken at lower rates, thus affording more experience to business men and workers. As early as possible, too, new lines of production were entered, so that now while India buys the simplest machines in England, Japan manufactures many of decidedly complicated character. The Indian government took a far narrower view of its obligations, leaving Indian business severely alone. It could have done much in this way to the ultimate benefit of both itself and the people. It is easy to regard this neglect as proof that a market for British goods concerned the British governors of India more than the development of effective industry in India; but a fairer interpretation is to recognize that British goods were in fact better able to satisfy government conceptions of quality. Although some purchase of Indian goods has long been practicable, it is only within the last few years that it has become usual.

Currency.[42] Currency control has also created differences of interest and the claim that Indian interests were being sacrificed to British. The most severe criticism has been directed at the adoption

[41] *Moral and Material Progress and Condition of India in 1924–5*, pp. 178–9.
[42] See also Chapter VIII.

of the gold exchange standard in 1893 and the post-War raising of the value of the rupee from 1s. 4d. to 1s. 6d. Objection has come mainly from Indian manufacturers, especially the cotton manufacturers of Bombay, whose principal market was in China. They claim that the change to gold caused "an immediate rise of nearly fifteen per cent in the rupee exchange rate with China" and "drove the first nail into the coffin of the China yarn-trade." [48] The European houses engaged in manufacturing in India are almost always engaged also in foreign trade, but especially with Europe. Often they were also importers of European goods. Their interests thus lay more in the steady gold exchange, and their greater readiness to coöperate with the government, together with their traditional prejudice in favor of gold, led them not only to accept the change but also to agitate strenuously for its establishment.

This difference in attitude was partly a mere clash of interest between different business groups such as may arise in any legislation touching economic matters. But the legislation brought definite advantages to trade with Europe—especially with England —and an interruption to trade with China. The trade with Europe tended to encourage Indians to produce raw materials and import manufactures while the trade to China tended to make India the manufacturer.

Yet since the remainder of the world was moving towards the gold standard it is impossible to deny the wisdom and the marked success of the government in attaching the currency to gold. Japan's trade interests were even more closely related to China yet she changed to gold of her own volition. Although England gained by the change, this was largely incidental to a change which was advisable on its merits.

A minor cause of difference has been the use of Indian government funds in the working of the gold exchange standard. There has been much opposition to the policy of centering everything in London where the gold-standard reserve and the paper money reserve have been kept. The government insisted that this was done in order better to control the exchange situation, but the critics of this policy see in it the use of funds raised by Indian taxation for the good of London trade.

[48] *Statement Submitted to the Tariff Board by the Bombay Mill-owners' Association,* July 17, 1926, pp. 13–14.

More vigorous objection has been taken to the post-War change in the value of the rupee from 1s. 4d. to 1s. 6d. This change was made at a time when the Bombay cotton mills were in much difficulty and Bombay interests saw in it an attempt to subsidize importers of foreign goods to the extent of 12½ per cent. Whereas wages and most of the other costs of Indian producers were relatively fixed in rupees, this would allow importers from gold standard lands to lower their prices in India. With a more valuable rupee a smaller number (one-eighth less) of them would purchase a given amount of exchange payable in sterling in England. This was seen as another phase of the ancient game of grabbing the Indian market. In exporting too, the Indian was at a corresponding disadvantage. In all foreign markets it would be necessary for him to raise his prices by one-eighth in order to secure in India his usual amount of rupees. This of course would handicap him as a competitor in these markets.

Also in this case there was a difference between the Indian and the British business men in the country. With a few exceptions, the latter agreed with the government's proposal. Partly this is due to the general desire of Europeans to stick together, and partly because the change increased the sterling value of whatever money or property these Englishmen might have in India. British officials in India likewise would find their rupee savings more valuable when transferred to England.

Again the motives of the government appear to have been mixed. It knew that it could establish the rupee at either 1s. 4d. or at 1s. 6d. according to the amount of currency and credit it kept in circulation. The Royal Commission on Indian Currency recognized this fact when it wrote in 1926:[44]

> The stability of the gold value of the rupee is . . . based upon nothing more substantial than a policy of the Government. The system does not secure the automatic expansion and contraction of currency. Such movements are too wholly dependent on the will of the currency authority.

The government decided to put the rate as high as possible. It failed to make it 24d, that is, a 50 per cent advance over pre-War, but it secured an increase of 12½ per cent. A government dispatch of October 11, 1924, stated that it sought "a permanently higher

[44] *Report*, p. 5.

rate than 1 shilling 4 pence gold";[45] and to that end it deflated the currency by nearly 350 million rupees.[46]

The principal argument given by the government in favor of the higher rate of exchange was that the rupee had naturally settled to this level.[47] But it seems clear that this level came only by government action, and that a rate of 1 shilling 4 pence could have been secured as easily. Therefore, the only inquiry worth making is, Why did the government choose this level?

The obvious reasons seem to be two. First, the problem of the "finance member" of the Viceroy's government was facilitated. There have been difficulties, ever since the War, in balancing the Indian budget, a considerable part of which is paid out in the United Kingdom in "home charges." The high-valued rupee enables the finance member to pay with one-eighth less rupees. In so far as the money is spent abroad this is an effective increase of one-eighth in taxes; and Indians must export that proportion more of produce to cover the charge. The ordinary Indian would of course be ignorant of any such fact as this, but the business and political leaders have become so suspicious that they find jokers in almost every government policy. Considering the great budgetary difficulty which had to be met, this was a reasonable policy. The reasons given for its justification leave something to be desired; but tax-collectors' excuses must everywhere be taken with some reservation.

The other possible reason for the change seems to be that, at least during a few years of transition, this would give British goods a better chance of success in the Indian markets. This would be in accord with the most pessimistic interpretations of what may be expected from the government of India. While there are many things in the past which would justify this interpretation, it is probable that this was in the main merely an unfortunate coincidence. The budget was the main consideration. Yet one may sympathize with the Indian who cynically doubts the innocence of the benefiting bystander, British trade. In its effects on Indian opinion, this must be written down as another unfortunate entry in the British record in India.

[45] *Ibid.*, p. 10. On p. 8 it is made clear that the quantity of money in circulation depends on the policy of the government and is not at all "automatic."

[46] *Ibid., Minute of Dissent*, p. 121.

[47] See address by the Finance Member in charge, Sir Basil Blackett, at Delhi University, published in the *Times of India*, November 24, 1926.

Banking.[48] Closely connected with the currency policy has been that regarding banking. Apart from severe criticism of the government for not establishing with its own backing a system of banks to deal with internal trade, foreign trade and industry, such as were set up in Germany and Japan, there has been a recent contest over the establishment of a central bank for India.

The inactivity of the government is in all probability due to its general lack of concern for business affairs and its policy of *laissez faire*, rather than to any real unwillingness to serve India. Undoubtedly such institutions would have been a great advantage to industrialization. The actual state of Indian banking may have been more "natural," but it also has fitted in with a scheme of allowing Britishers to provide manufacturing and finance while Indians produced raw materials. The principal banks are British-owned and their main business is concerned with foreign exchange and foreign trade. But the government's negligence in establishing a strong domestic banking system has laid it open to the criticism which is rife.

The recent contest over the establishment of a central bank for India brought out another point of critical attack. The original bill was thrown out by the government because the Indian legislature insisted upon a bank controlled by the legislature while the government insisted upon a bank controlled by its shareholders. The government professed a justifiable fear lest the Indian plan meant political dabbling with financial matters while the Indian legislators voiced their belief that the government proposal meant control by Englishmen. The government's plan finally triumphed.

Education. During most of the period covered by this study, education received very little attention from the government and the population as a whole has remained ignorant and superstitious. Only 10 per cent of the people over twenty years of age are literate, and of the women only 2 per cent. About 3 per cent of the total population are in elementary schools as against 18 per cent in the United States; and only 4 per cent are in all kinds of educational institutions, as against 25 per cent in the United States.

The quality of the schools is also poor. In the villages the equipment is practically nil and the teachers are both poorly trained and poorly paid. Only by a stretch of the imagination can many

[48] See also Chapter VIII.

of the unfurnished sheds, containing a very ignorant teacher and a few children, be called schools at all. Little wonder that [49]

> the majority of children in primary schools are under instruction for between three and four years only; and for the greater portion of the time four out of every five linger in the lowest class. In consequence, there is a tendency to lapse into illiteracy after the short period of instruction comes to a close.

This means that of the three per cent enrolled in primary schools only one-fifth really gain anything from the experience. The expenditure of government funds on all education has recently been about 20¢ per capita as against $17.15 per capita in the United States [50] for elementary education alone. In 1908 [51] the expenditure of government funds was only 3¢ per capita as compared to $1.28 per capita in France.

Facilities improve relatively as we pass from elementary to higher education. Secondary schools are much better than the primary, but even they are inadequate. "Efforts at improvement seem to be swallowed up in an overwhelming supply of cheap and bad institutions." [52] Colleges and universities are of still better quality but are generally "cheap imitations of London University." [53] A Director of Public Education in Bengal says that education there is a farce.[54] Moreover, the education offered has been ill adapted to the needs of the country. Indian Brahmans and British university men have transplanted to India the Cambridge and Oxford type of curriculum. But the literary and legal training once thought suitable for the ruling class in England did not meet the needs of a poor non-English-speaking country, ruled by aliens, and in want of economic reorganization. The prejudices of the young Indians, brought up to despise science, agriculture, engineering and applied economics, were deepened by their education in the liberal arts. More than ninety per cent of the students now enrolled in universities and colleges recognized by the government are in colleges of arts and of law.

[49] The Director of Public Information in *Moral and Material Progress and Condition of India*, 1923–4, p. 227.

[50] Indian figures are for 1926–7, and the United States figures are for 1925.

[51] *Parl. Papers*, 1908–9, LXXIV, Indian Government Financial Statement, p. 169.

[52] *Moral and Material Progress, 1923–4*, p. 231.

[53] This comparison is quoted from Dr. Rabindranath Tagore, *Boston Herald*, Nov. 27, 1930.

[54] Montague, *op. cit.*, p. 92.

The greatest shortage has been in technical education. In such fields as agriculture, commerce, and engineering, one sparsely settled American state, such as Iowa, with one per cent of the population of British India, has more students.[55] Criticism of the government for its inadequacies on this score has had little effect. Sir George Watt, the great authority on Indian economic products, said in 1887 [56] that "what India most loudly calls for is more technical knowledge."

Again it is difficult to apportion the blame for this situation. The government and the people accuse each other but both are responsible. Only within recent generations have Europeans and Americans commenced to educate their people. Indians no more demanded universal elementary education in the past century than Europeans demanded it in the century preceding. The old Hindu system, while putting much stress on knowledge, afforded little opportunity for general education. Under the caste system with its fixed occupations, reading was for priests and writing for scribes; for the hereditary barber, washerman or weaver, no bookish education was even thought of.

But besides the lack of enthusiasm on the part of the people, English officials have often been very skeptical about the practicability of educating the workers. Many managers of factories find the uneducated less troublesome. Though the Industrial Commission speaks of employers wanting employees with at least a primary education, there is much fear, especially among European employers, of the educated worker. A European assistant factory inspector still thinks that "it would cause a lot of trouble" and the Labor Intelligence Officer of Bengal expresses a similar opinion: "Essential as education may be for industries, one may prophesy that ultimately it will raise more difficulties than it will allay." [57] This attitude arises in large part from a conviction on the part of many members of the ruling race that an educated India will be much harder to control than an ignorant and superstitious India.

But some British officials have long urged the furtherance of popular education. A British official wrote in 1873 as follows: [58]

[55] See *Statistical Abstracts* of British India and of the United States.

[56] *Journal of the Society of Arts*, XXXV (1887), p. 276. See also the remarks of Mr. F. H. Skrine, I.C.S., in *Journal of the Society of Arts*, L, pp. 183 and 351.

[57] Gilchrist, *Wages and Profit Sharing*, p. 311.

[58] Mr. (later Sir) Lepel Griffin, in *The Fortnightly Review*, July–Dec., 1873, p. 497.

The Government of India is generally represented as dragging the people unwillingly behind in the road of reform, as a master drags a truant boy to school. But India does not need to be ridden with a spur. The people themselves are eager for progress; their constant demand is for more schools and colleges, for roads and bridges to open up the country, for doctors and dispensaries.

This was fifteen years after the taking over of government by the Crown, and thirty-five years later the great Gokhale, founder of the Servants of India Society, was pleading in the Viceroy's Council for more attention to education:[59]

The government is not doing its duty. . . . There is no escape from so obvious a duty, and every day's delay is a wrong to the people. We sometimes hear it said that it will be impossible to find money for so vast an undertaking. My Lord, it is not true. The money is there for whatever developments may take place immediately, and it can be found without difficulty as we go along. . . . Only the will has to be there and then we shall not be found merely discussing the difficulties of the problem.

India's rulers were not without reasons for their policies. Indians were generally indifferent and most children were not sent even when a proper school was provided. The masses did not wish an education and among educated Indians there was always some question as to its utility for the laboring classes. As in Europe, aristocratic tradition fostered conservatism. Many officials sincerely believed that education would increase unrest and make the problem of governing more difficult; but it may reasonably be supposed that a study of science and technology would have produced less revolutionary ferment than the superficial literary and legal training which usually has been given. The chief argument, however, was always financial. India was wretchedly poor and there were no funds. As Indian social customs do not yet permit young women to be teachers,[60] the relative expense has been high.

Education has now been placed in the hands of Indians. The reforms of 1919 "transferred," education into the hands of ministers responsible to elected provincial legislatures. Unfortunately the government has been in most serious financial difficulties, intensified by the long period of business depression. Indian leaders are thoroughly alive to the pressing need and the total number of

[59] See Financial Statement, Government of India, for 1908–9, in *Parl. Papers*, 1908–9, LXXIV, p. 173.

[60] The number of young women attending normal schools has recently increased very rapidly.

students enrolled in primary schools increased by three and a half times during the decade ending 1930. Expenditure on education has been rising, students are increasing very rapidly and compulsory attendance has been introduced in a surprisingly large number of places. Probably training will long remain inadequate for the technical demands of the age; but even the three R's, effectively taught, would open a new world and make possible a much more rapid absorption of new points of view.

It will not be easy, against the traditions of the non-working Brahmans, to popularize industrial and commercial education. Yet with India's competitors so far in the lead, only by education can she hope to overtake them. And it must not be thought that all Indians hate change. There are active and ambitious spirits in every center which, in education as in other fields of thought, are ready to go forward with the most progressive leaders of Europe, America or Japan.

Progress has been slow, but the difficulties have been great. Besides formidable obstacles—geographic, climatic, economic and sociological—there have been differences between the rulers and the ruled which have involved the deepest conflicts known to human nature. There have been the persistent prejudices and antagonisms of color, race, language and religion. And the recent sharp conflicts of economic interest have coincided with the rise of nationalism as a fetish.

Yet it is clear that these obstacles have not been insuperable. The showing seems poor by western standards, but India's industrial progress has thus far surpassed that of China. Full understanding and single-hearted desire for Indian advance on the part of India's rulers might have accomplished much more, but there was no other available governing group which combined these qualities with administrative energy and economic power. While the same government which India has had might conceivably have shown more reforming zeal, the men who constituted it have exhibited in such high degree so many of the characteristics of good government everywhere,—high intelligence, honesty, tolerance, industry and humanity,—that in any fair retrospect India's historian must concede that India has gained by their efforts.

Because it brought security and unification British rule has resulted in a great increase in India's population, in the establishment of greatly improved communications, and a much more highly de-

veloped industry than would have developed without strong government." Besides this material development more change has been wrought in Indian psychology than would have been made without their presence. The education, even the language, by which Indian patriots are moved is from England. By direct contact a growing number of Indians have acquired power to understand and operate machinery and to organize and direct large enterprises. By the same association with Englishmen they are acquiring something of the technique and spirit required for handling the complicated problems of industrial labor. Nowhere else in Asia would it be possible for the government to command the services of such abilities as were comprised in the recent Royal Commission on Labor in India—not to mention other recent British and Indian Commissions. In dealing with political and economic problems, British statesmanship, in spite of its frequent bias, has been invaluable to India. Indians have risen to the new opportunities and there has appeared a group of Indian public men whose breadth of knowledge and sympathy fits them to effect a successful union of the best in eastern and western cultures.

The key to India's present problem seems to be more coöperation rather than less. "Non-coöperation" is no new political game in India. The government long refused to coöperate with Indians and most decisions vitally affecting India's well-being were made in London. That method has proved defective, but now that the government has begun to take Indians into its organization and confidence, "non-coöperation" has broken out in the Indian camp and threatens an open breach. It appears that a combined government is still best for India. It is too late for Britain to rule alone but too early for Indians alone to meet the situation successfully. The British are still able to do much for India, but it must be done with full coöperation on both sides. The English government is evidently learning respect for Indian opinion and is conceding, we may hope not too belatedly, increasing power to the Indian people. The Indian leaders, despite their criticisms, recognize and appreciate the great contribution of the English. But the present situation, especially on its economic side, demands the coöperation of equals rather than the tutelage of a backward people. An industrial system, transplanted from England, has taken firm root in Indian soil, and capitalistic enterprise is no longer alien.

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