STRUCTURE
OF
INDIAN INDUSTRIES"

BY
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1941.
"At this exceptionally dangerous juncture in the world affairs it is desirable that each country should studiously bend its attention to its inherent resources -- material as well as spiritual -- and in India there are manifestly vast untouched fields for industrial development whose opening would not only provide livelihood for many thousands but fortify our nation against threat of adversity."

(Dr. Rabindra Nath Tagore)
I am conscious that mine is not a venture in a field hitherto unexplored, and yet I feel that no apology is needed in selecting 'The Structure of Indian Industries' as a subject for my thesis. Apart from the intrinsic importance of the subject, the rapid changes that have taken place during the last five or six years make the review of the Indian industrial structure not only useful but imperative. In matters of industrial development we have reached a stage when, in several directions, production has almost overtaken consumption. The era of consolidation which is to succeed that of expansion bristles with problems the examination of which cannot but be of great advantage to the Indian publicists, industrialists and businessmen.

An attempt has been here made to catch the latest phases of the raw-material position, the production, the location and the equipment and size of the industrial unit in each of the more important and representative industries of India. In each case, suggestions for new lines of advance have been made and new possibilities indicated. The present critical condition of the Sugar Industry and the chaotic condition of the jute Industry have been carefully studied and the way out suggested. Special attention has been paid to the recent developments abroad viz., the extent and the efficacy of the State control and encouragement of industry (e.g. the promotion of industries in the depressed areas by the Government of Great Britain). The rationalisation movement in Germany, Japan and the United Kingdom has been studied, specially with a view to its feasibility in India. The problem of industrial planning has also been examined. The latest tendencies in the banking world have been noted (e.g. an unsound increase in the short-term credit in the German Banking System and the loss of its structural efficiency, from the point of view of industry,
on account of the restrictive policy of the Reichsbank). The
industrial policy of the State in India with its increasing
intervention in the industrial sphere, too, has been taken
notice of.

Few authoritative works have been published on this
subject since 1935 when Dr. Lokanathan wrote his "Industrial
Organisation in India." When this thesis was being completed,
two more books appeared viz., Organisation and Finance of
Industries in India (1937) by Samant and Mulky, and Industrial
Enterprise in India (1938) by Maharajpal Singh. Apart from the
fact that I do not find myself in agreement with some of their
views, this present work covers a much wider field. It may,
therefore, be hoped that it will make some contribution to
the literature already published on the subject.

The plan of the work is briefly this: The first chapter,
which is of an introductory nature, deals with the vast and
varied resources of India and the huge wastage thereof at the
present time; the second chapter deals with the Indian
industries in the past, their organisation and decline. The
next seven chapters are devoted to the detailed examination
of the latest problems of the representative industries of
India; in Chapter X the problem of the management in Indian
industries has been discussed and in Chapter XI we discuss
the problem of industrial finance. The last chapter has been
devoted to the discussion of the plans and policies for
accelerating industrial development in India.

The completion of this work has been somewhat delayed,
partly on account of the time that I had to give to my
official duties and partly on account of the necessity of
finding some suitable time for visiting the principal
industrial centres in India in order to study the main
industries on the spot. This I found in the summer of 1938
when I did a three months' tour of Bombay, Ahmedabad,
Calcutta, Delhi, Lucknow, Cawnpore and Jamshedpur.

In preparing this work, I have incurred obligations
which it is a pleasure to acknowledge. I am obliged to
discussing the problems of their respective industries. I am specially thankful to Mr. T. Maloney, Secretary Bombay Millowners' Association, Mr. R. L. Umarwadia, Secretary Ahmedabad Millowners' Association, Mr. D. C. Fairbairn, Secretary Bengal Chamber of Commerce, L. Karim Chand Thapar, President Indian Sugar Syndicate, Mr. S. R. Dhedde, Secretary Indian Sugar Mills Association, Mr. Ghandy, General Manager Tata Iron and Steel Works, for placing at my disposal much useful information in the various industries and providing me the necessary facilities to study the subject. To L. Karim Chand Thapar, I am doubly obliged for he, not only secured for me all the necessary facilities when I visited Calcutta, but also got my chapters on Tea and Jute Industries perused by some of his friends in the trade. I feel also much obliged to several experts in the various aspects of our industries who were kind enough to go through the relevant chapters and from most of whom I received much new information and valuable suggestions. Among these I must mention the names of Mr. M. J. Antia, Principal Sydenham College of Commerce and Economics Bombay, Mr. M. P. Ghandi, Chief Commercial Manager, Rohita Mills Ltd., Mr. P. N. Singh of the Concrete Association of India and Mr. M. R. Kohli Managing Director, New Bank Ltd. A friend employed in Shree Gopal Paper Mills, Jagadhri and another in the Tata Iron and Steel Works were also very helpful.

I am specially indebted to Dr. L. C. Jain without whose inspiration, constant guidance, supervision and help this work perhaps would never have been completed.

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January, 1941.
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CHAPTER I.

INTRODUCTORY.

Indian Resources and their Wastage

"A poor people in a rich land" is the unfailing paradox with which a student of Indian economic conditions is faced. It is nothing short of an enigma that a country endowed with lavish gifts by nature should be so inexpressibly poor. India is rich in raw materials; she has cheap and abundant labour and almost a limitless market; and she has been importing, till recently, large quantities of precious metals which could serve as effective capital. She has, in short, all the requisites of industrial development of a high order and yet she is industrially among the most backward. Considering her size, her volume of industrial production seems to be ludicrously small. To take only two examples, her cement production in 1937 was less than \( \frac{1}{26} \) th of that of U.S.A., \( \frac{1}{8} \) th of that of Japan, \( \frac{1}{12} \) th of that of Germany and \( \frac{1}{7} \) th of that of United Kingdom. Of iron ore her production in 1937 was less than \( \frac{1}{26} \) th of that of U.S.A., less than \( \frac{1}{6} \) th of that of France, \( \frac{1}{5} \) th of that of Sweden and less than half of that of United Kingdom.

In this chapter a notice will be taken of some of the facts which have affected our industrial structure, especially of the huge wastage of our resources. It is not possible to give a complete and precise estimate of this wastage. Only some directions in which this wastage occurs will be indicated here.

PHYSICAL FEATURES.

India has almost continental dimensions and her area is more than twice the combined area of the five industrial leading countries, viz. Japan, Germany, France, Italy and United Kingdom; it is more than twelve times that of


2. Ibid., p. 145.
Japan and nearly twenty times that of United Kingdom.  
She has a climate ranging from the tropical, subtropical to the cool mediterranean type and has justly been called the 'epitome' of the world. Tropical monsoon type finds its greatest development in India. Her mountain ranges are the highest and the longest in the world and are clothed with dense forests, having a large potential supply of valuable materials like timber and raw materials for paper, match and lacquered industries. Her river system is splendid. She has a vast tract of alluvial soil — the Indo-Gangetic plain, which is very productive and so is also the 'Black' soil of the Deccan Plateau. She commands a very favourable geographical situation occupying a central position in the south of Asia at the head of Indian Ocean which is an important highway of trade.

But somehow these advantages have been neutralised. A lack of cheap and efficient means of communication and transportation has neutralised the advantage of a big size and has rendered our mountainous forest wealth inaccessible. A coast line of 5000 miles is not of much use when there is only one big natural harbour. The high mountains cut us off from the overland markets. The Indo-Gangetic plain is so level in some parts that almost every year these parts are visited by devastating floods.

AGRICULTURAL RESOURCES

The Indian soil is so extensive and prolific that India need not depend on foreign countries for most of the necessary raw materials for her industries. At present she is supplying these materials to other countries and she can well feed existing and future industries of her own.

In 1938-39 the export of only five raw materials viz; raw jute, raw cotton, raw wool, oil seeds, hides and skins was worth Rs. 60,61,04,000. ² By not converting these raw -

2. Based on figures given in the Review of the Trade of India, 1938-39, pp. 231-236.
materials into manufactured goods at home, India is denying to herself large opportunities of wealth production.

She has a large surface area for cultivation. According to village papers, the total area in 1936-37 was 679 million acres. Of this 89 million acres, i.e., 13 was under forests and 105 million acres, i.e., 22.8% was available for cultivation. We are thus left with 434 million acres of arable land. But 154 million acres represented cultivable waste and 48 million acres were current fallows. Therefore 232 million acres were actually sown which is 53.4% of the cultivable land. If we add to it the area sown more than once, considering it as a separate area sown for each crop, the total area sown will come to 267 million acres. Now, even if half of the cultivable waste were brought under cultivation, it will add by more than 25% to our agricultural output. The area representing current fallows is more than one-fifth of the cultivated area. A better system of rotation can therefore further increase our agricultural output by 20%.

The area under various crops and the yield thereof are quite impressive. The following are the figures relating to the principal crops in India, 1938-39.

<table>
<thead>
<tr>
<th>Crops</th>
<th>Area. (In thousands of acres)</th>
<th>Yields. (in thousands of ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice</td>
<td>72,943</td>
<td>23,818 Tons.</td>
</tr>
<tr>
<td>Wheat</td>
<td>35,231</td>
<td>9,834</td>
</tr>
<tr>
<td>Sugar Cane</td>
<td>3,113</td>
<td>4,108</td>
</tr>
<tr>
<td>Linseed</td>
<td>3,884</td>
<td>445</td>
</tr>
<tr>
<td>Sesramum</td>
<td>4,331</td>
<td>386</td>
</tr>
<tr>
<td>Rape and Mustard</td>
<td>5,508</td>
<td>926</td>
</tr>
<tr>
<td>Castor seed</td>
<td>1,199</td>
<td>111</td>
</tr>
<tr>
<td>Groundnut</td>
<td>8,439</td>
<td>3,196 16</td>
</tr>
<tr>
<td>Cotton</td>
<td>23,507</td>
<td>5,045 400 lbs.</td>
</tr>
<tr>
<td>Jute</td>
<td>3,165</td>
<td>6,819</td>
</tr>
<tr>
<td>Tea</td>
<td>833</td>
<td>451,861 lbs.</td>
</tr>
</tbody>
</table>

2. Ibid., p. (11).  
India is the largest producer, in the world, of rice, sugarcane, tea, linseed, rape seed, sesame and ground nuts. In tobacco and cotton, she is only second to U.S.A. In jute she holds a monopoly. But here again, if we consider the yield per acre, it will be clear that we are not making the best use of our land surface and are not getting out of it as much as we should. As against 731 lbs. of rice that we are raising per acre, Japan raises 3,449 lbs. nearly and U.S.A. 2,200 lbs. Yield per acre of wheat in India is 63 lbs. but it is 801 lbs. in U.S.A. Of sugarcane, the yield per acre is 15.6 tons in India, whereas it is 29.0 tons in Formosa and nearly 50 tons in Java. The yield per acre of cotton in India is 86 lbs. but in Egypt it is 445 lbs. and in U.S.A. 246 lbs. Existence of uneconomic holdings due to subdivision and fragmentation, lack of adequate irrigation facilities and non-adoption of intensive methods of cultivation such as judicious selection of seed, scientific rotation of crops, application of chemical manures, use of modern implements, are some of the causes responsible for the comparatively inefficiency of our agricultural operations. Even ignoring the poor quality of our produce on account of which it fetches much less price than the produce of other countries, the loss due to lower yield is also very heavy. If we could double

1. These comparisons are based on figures of world production given in the Statistical Year-Book of the League of Nations, 1938-39, from page 88 onwards.


3. Yields per acre in India, except for sugar, have been taken from pages 9 and 10 of "Estimates of Area and Yield of Principal Crops in India, 1938-39 (1940)," and yields per acre for other countries have been calculated from the figures of area and yield given on pp. 35-40 of the same publication.
the yield in cotton and rice and increase 20 lbs per acre in wheat which will still leave us far behind other
progressive countries, it will bring us nearly Rs. 37
crores from rice, Rs. 52 crores from cotton and Rs. 2
crores from wheat making an aggregate of Rs. 91 crores
in these three staple commodities alone.¹ What a huge
loss we must be entailing through persistence in sowing
indigenous varieties instead of the improved ones, can
be seen from the fact that a farmer by sowing cigarette
tobacco can make with a little more labour a net profit
of Rs. 105 per acre whereas by sowing hukka (indigenous
smoking pipe) tobacco he gets only Rs. 60/- . There is
thus a loss of Rs. 45/- per acre from all land devoted
to the cultivation of tobacco of the old variety.² A
similar loss occurs from the cultivation of every crop
that we sow. It has been estimated that by means of
better methods of cultivation, such as the rotation of
crops, the growing of green manures and the banking of
land to prevent erosion, agricultural output could be
improved a full 25% without any increase in capital
expenditure. By other measures -- the use of improved
seeds, fencing, the consolidation of holdings -- a furth
25% could be added at very little cost.³

Agricultural output can also be considerably
increased by treating areas liable to famine by dry
farming method. Experiments in Bombay have shown that
according to cultivator’s methods 741 lbs. of grain and
2,444 lbs. of straw is the yield of jowar and by dry
farming method the yield comes to 1,260 lbs. grain and
2,543 lbs. straw.⁴

¹ The price of cotton has been calculated at Rs. 185
per candy of 784 lbs. each(Vide Indian Trade Journal,
September 5, 1940), rice at Rs. 5/- per maund and
wheat at Rs. 2/6/- per maund.

² These figures have been obtained from the Government
Agricultural farm Jallundur.

³ Butler, Harold -- Problems of Industry in the East
(published by International Labour Office, Geneva,193
p. 30.

⁴ Agriculture and Animal Husbandry in India, 1937-38
FOREST WEALTH.

The total forest area in British India, provinces in 1936-37, was 241,743 square miles and was 23.6% of the total area of the Provinces.¹ The value of minor forest produce in 1936-37 was Rs. 1,07,61,234 and the cut-turn of timber and fuel from all sources came to 375,606,027 cubic feet.² The Indian forests have been yielding quite a large income which since 1920 till the last economic depression was every year 5½ to 6 crores of rupees and in 1936-37, it was Rs. 1,64,45,435.³

But there is a great deal of wastage of our forest wealth also. Apart from the fact that many of our forests are yet inaccessible and lie untapped, there is a huge loss from fires and insect diseases. In 1936-37 only 36.8% of the total area of reserve was under fire protection and the number of fires that broke out was 5375 covering 2154 square miles.⁴ Dr. C. F. C. Beezon, Forest Entomologist, Forest Research Institute Dehra Dun, has calculated a loss of Rs. 15 to 20 per acre from the small out-breaks of the Sal borer.⁵ Loss from fire is much more complete and can therefore in no case be less than Rs. 20 per acre. In 1936-37, the loss of our forest wealth from fires alone may therefore be safely put at Rs. 2,75,71,200. According to Dr. Beezon, in two divisions of C.P. the loss of forest capital from insects was Rs. 1,37,50,500.⁶ Thus there is a considerable wastage of our forest wealth. What possibilities the

². Ibid., p. 19. Total of Bamboos, grazing, fodder, grass and other minor forest produce.
³. Ibid., p. 17.
⁴. Ibid., p. 23.
⁵. Ibid., p. 11.
⁷. Ibid., p. 243.
development of forest resources of the country has, can be gauged from the fact that India imported, in 1937, timber and sleepers of wood for railways worth Rs. 1,83,85,439.1

**MINERAL WEALTH.**

The total value of the minerals produced in 1938 was Rs. 34,13,93,365 (£25,447,116).2 The chief mineral products are coal, iron, gold, petroleum, manganese, tin, mica, lime, etc. The quantity and the value of the principal mineral products in 1938 are given below:-

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Quantity</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromite.</td>
<td>44,149 Tons.</td>
<td>Rs. 6,82,502 (£50,933).</td>
</tr>
<tr>
<td>Coal.</td>
<td>23,342,506 Tons.</td>
<td>10,64,23,835 (£7,942,077).</td>
</tr>
<tr>
<td>Copper.</td>
<td>228,076 Long.</td>
<td>32,40,640 (£243,048).</td>
</tr>
<tr>
<td>Diamonds.</td>
<td>1,729 Carats.</td>
<td>68,813 (£5,135).</td>
</tr>
<tr>
<td>Gold.</td>
<td>321,137.8 Oz.</td>
<td>3,04,75,397 (£2,274,383).</td>
</tr>
<tr>
<td>Lead.</td>
<td>80,100 Tons.</td>
<td>1,67,36,720 (£1,249,009).</td>
</tr>
<tr>
<td>Magnesite.</td>
<td>25,611 Tons.</td>
<td>1,60,593 (£1,194).</td>
</tr>
<tr>
<td>Manganese.</td>
<td>967,929 Tons.</td>
<td>3,22,94,763 (£2,932,445).</td>
</tr>
<tr>
<td>Manganese.</td>
<td>5,221 Tons.</td>
<td>2,33,700 (£17,440).</td>
</tr>
<tr>
<td>Nickel.</td>
<td>3,015 Tons.</td>
<td>11,06,322 (£82,561).</td>
</tr>
<tr>
<td>Petroleum (including Burma).</td>
<td>274,664,365 Gallons.</td>
<td>5,26,06,155 (£4,474,147).</td>
</tr>
<tr>
<td>Silver.</td>
<td>6,181,000 Oz.</td>
<td>73,60,998 (£583,458).</td>
</tr>
<tr>
<td>Tungsten.</td>
<td>4,997.7 Tons.</td>
<td>80,22,748 (£603,214).</td>
</tr>
</tbody>
</table>

This is quite an imposing array of figures. India is the world's chief producer of Mica. High grade chromite is produced in large quantities in Baluchistan. The best and the largest bauxite deposits are found in C.P. South Burma is one of the richest sources of Tungsten ore in the world and this is an indispensable ingredient in the manufacture of high speed steel.

India is the second largest producer of coal in the British Empire. But the quality of coal is inferior and the sources of coal are very unevenly distributed in the country. Jharia coal fields accounted for 38.35%, Raniganj coal fields for 28.74%, Rookar coal fields for

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1. Annual Return of Statistics relating to Forests etc. for 1936-37, p. 20.

Thus 89.5% is derived from coal fields of Bihar and Orissa alone. Coal being a very bulky article, the cost of transporting it to certain industrial centres as in Madras and Bombay Presidencies is almost prohibitive.

Besides, we have been receiving in recent times repeated warnings of the probable exhaustion of our coal resources in not a distant future. In 1873, Mr. T. W. F. Hughes showed that area under coal in India was of the order of 35,000 square miles i.e., one-fifth of the world and three times as large as estimated for Great Britain.

Dr. Fox's estimate as to the total coal reserves of Lower Gondwana was 60,000 million tons and Gondwana fields produce 93.14% of coal produced in India. Dr. Fox estimated, however, the reserves of workable coal at 20,000 million tons, reserves of good quality coal at 5,000 million tons and of good coking coal at 1,500 million tons. Sir Lewis Leigh Fermor in 1935, put the reserves of good quality coal at 4,500 million tons.

With 100% extraction, these reserves, according to Fermor would last 200 years but it would be safer to put the extraction at 50% and the reserves would therefore last only 100 years. The Indian Coal Mining Committee of 1933 estimated that reserves of good quality coal would last 122 years and that of coking coal for 62 years, though the resources of inferior coal were found to be practically unlimited.

The span of 100 years or so in the life of nation is not much and the situation as visualised by the experts, therefore, cannot but make us anxious about our future on this score. It is likely, however, that geological survey may lead to the discovery of new

1. Indian Coal Statistics for 1937, p.2.
4. Bulletin of Indian Industries and Labour No. 54 (1933), India's Coal Resources by Sir Lewis Leigh Fermor.
reserves. The general report of the Geological Survey of India for 1938 mentions the discovery, in the Langrin area in Assam, of new deposits of coal one workable seam of which alone has a total reserve of 80,000,000 tons.

D. N. Wadia of the Geological Survey of India thinks it probable that a large extent of coal-bearing Gondwana rocks lies hidden underneath the great pile of lavas of the Deccan trap.

A lot of wastage results from our methods of working the coal mines. Mechanical appliances for screening, cleaning and loading are used to a very small extent and mechanisation of the under-ground processes has not made much progress. The Indian Coal Committee of 1937 remarked "The coal trade in India has been rather like a race in which profit has always come in first with safety a poor second, sound methods also ran and national welfare a dead horse entered perhaps, but never likely to start."

The inefficiency of our methods is demonstrated by the fact that the average output per head of the persons employed above and below ground is 129 tons in India, whereas it is 761 tons in U.S.A., 304 tons in Great Britain, 372 tons in Germany and 207 in Japan.

India is also the second largest producer of iron in the British Empire. But as compared with the vast resources which, even according to a conservative estimate, are not less than 3,000 million tons, her production seems to be infinitesimally small.

5. Rich deposits of iron ore of considerable economic value have been discovered in Kangra hills extending over an area of 7 square miles, but no scientific attempt has been made so far to open these deposits. (Vide Searchlight, dated 21st September, 1940).
Position as regards petroleum has been rendered unsatisfactory for India proper by the separation of Burma and whatever petroleum is found in India is located at two extremes i.e. Assam on the one end and Attock District in the Punjab on the other.

**ANIMAL RESOURCES.**

India has a cattle population to match its human population. She carries one-fourth of the world's stock of cattle and two-thirds of its buffaloes and has to support something like 97 million sheep and goats.\(^1\) The number of live-stock per 100 people varies from 52 in Bengal to 86 in Ajmere Merwara.\(^2\) The annual cash value of live-stock and products has been estimated at Rs. 2,000 crores.\(^3\)

But such a huge live-stock, far from being a national asset, is a national liability. The quality of Indian cattle is very poor and they are generally mere skeletons and so many 'bags of bones.'\(^4\) A pair of oxen can help the cultivation of 10 acres and to cultivate 267 million acres, the area sown in 1936-37, we need 26,700,000 pairs. But if by improving the quality of our oxen, a pair can be made to cultivate 15 acres, we shall need 17,800,000 pairs thus relieving 8,900,000 pairs. If the cost of maintenance per pair is computed at Rs. 150/- a year, it alone will mean a saving of Rs. 1,33,50,00,000 to the farmers. Similarly by proper feeding and breeding of the milch cattle, wealth of India can be increased by several crores of rupees by increasing the yield of milk. According to the last cattle census there were about 52 million cows and 21 million female buffaloes in India. The lactational yield per capita as shown by the provincial marketing surveys (1936) was 587 lbs. for cows and 990 lbs. for buffaloes. In the

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1. Indian Information Series, April 1, 1939, p. 149.
breeding tracts, however, the estimated average lactation yield was 943 lbs. for cows and 2160 lbs. for buffaloes (see Bulletin No. 22 (1939) of the Imperial Council of Agricultural Research). This means that owing to the lack of proper breeding the ordinary Indian cow yields 466 lbs. less in a lactation and a buffalo 1170 lbs. less than they can. Considering the number of properly bred cows and buffaloes as negligible and taking one anna as the average price of milk per lb., the loss to India per lactation may be put at Rs. 30,17,25,000.

There is, further, a serious depletion of high class milch cows by the premature slaughter of dry cows in the cities. There is also a possibility of a large addition to our wealth by using in India only a part of the hides and skins that we export by expanding and improving our leather industry. In 1938–39, hides and skins worth Rs. 5,27,58,000 were exported.

**POWER RESOURCES.**

Position regarding coal and petroleum has already been considered. Much reliance cannot be placed on wind and wood as sources of power, especially as the latter will involve destruction of forests at a rate which cannot but be detrimental to the national interests. Water Power, on the other hand, offers immense possibilities. Indian rivers are full of natural waterfalls. Even canals and water storage as in the Deccan can serve the purpose of producing electric energy. Apart from the fact that electricity is considered the only practical method of transmitting power and that power can be transmitted to a distance of 250 miles and 1,000 miles under favourable conditions by this means, electricity is eminently suitable for

India, for it can mitigate to a very large extent the rigours of the Indian climate.

Hydro-electric resources of India can be considered quite adequate to meet the industrial needs of the water power zone i.e. area beyond 500 miles radius of Bengal, Bihar and Orissa. The Hydro-electric Survey showed the water power resources of India to be 5,582,000 k.w. or 7,400,000 h.p.\(^1\)

Big Hydro-electric schemes are in operation in India. In fact India was one of the pioneers in this respect, as the first hydro-electric scheme undertaken to the East of Suez was that on the river Cauvery in Mysore state and for some time it was the largest electrical transmission line in the world. The Tata's three undertakings viz. Lonavala, Andhra valley and Nila Vula have a combined capacity of 245,600 h.p. These three units operating as one unit supply energy to Bombay and its surroundings at 0.45 of an anna per unit for industrial purposes. The Bombay cotton mills and other factories consume about 150,000 h.p.

The Mysore Hydro-Electric works have now a total capacity of 46,000 h.p. and a power station at Shamshah falls that has been sanctioned is expected to produce 23,000 h.p. and another at Jog falls 20,000 h.p. thus making a total capacity of 89,000 h.p.

The Pykara Hydro-electric works (Madras) can with full storage generate 30,000 h.p., in addition to 30,000 h.p. from the tail water at a lower site. The most remarkable feature of the scheme is that it has the highest head plant in the British Empire, the vertical drop of water being no less than 4,000 ft. Of the total power demanded on the plant which amounted to 13,600 k.w. in 1936-37, the textile mills alone accounted for 56%, and other industrial concerns taking 15%. The current

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\(^1\) Hydro-electric Survey of India, Triennial Report, 1922, p. 55.
is supplied at the rate of 0.40 to 0.80 of an anna per unit. There are two other schemes undertaken by the Madras Government.

The Manli Scheme in the Punjab, when complete will give a total output of 118,600 k.w., a quantity more than sufficient to meet the requirements of the present generation in an area extending from Delhi to Sialkot and Lyallpur. Its 15,000 feet long tunnel is a marvellous achievement and is one of the first steel mantled tunnels to be built in Asia. Their charges for electricity vary from 9 pies to 18 pies per unit.

Some schemes are also operating in U.P. and Kashmir. The Kashmir works can generate 20,000 h.p. In U.P. a scheme investigated on the Jumna river contemplates the development of minimum continuous power of nearly 1,25,000 k.w. in four stages. It is estimated that with a 50% load factor the cost per unit delivered within 100 miles of the generating stations will be 1.5 pies per unit. Mr. Mears estimated that a minimum continuous power of 2,40,000 k.w. could be generated on the Satluj within some forty miles of the Jumna generating stations. It is estimated that both these rivers can ensure the generation of average block of power amounting to half a million kilo watts for consumption between Ludhiana and Aligarh.

Thus it may be seen that the hydro-electric schemes in India are both big and unique. The rates charged for consumption are fairly low and the energy is being readily taken up. They have also been a success financially. The Pykara Project in Madras, though not designed for profit originally, yielded a net surplus, in the third year of its working, larger than was anticipated in the 10th year. But we have so far developed only a

1. Indian Information Series, June 1, 1938, p.161.
2. Presidential address by K. B. Mian Abdul Aziz at the annual general meeting of the Institution of Engineers (India) held in January, 1940 at Lahore.
small fraction of our total water power resources. According to Sir Visvesvaraya, of the total power resources of 27 million horse power, we have actually utilised only 0.8 million horse power or only 3%.

**HUMAN RESOURCES.**

The population of India, according to the census of 1931, is represented by a staggering figure of 362,887,778 and is exceeded only by China. On 31st December, 1937, the estimate for British Indian Provinces alone was 362,000,000.² It is now generally considered that our population is nearly 400,000,000. But there occurs a large wastage of our human resources on account of ill-health, shorter longevity of life, unemployment, under-employment, strikes, useless motherhood and lower efficiency generally. It is not possible precisely to estimate the entire wastage of human resources, but estimate of this wastage in one or two directions will be enough to show that it must be colossal indeed.

The Census Report of 1931 gives the percentage of 3 workers as 44% which comes to 155,270,622 persons. But the number of persons in the working age i.e. between the ages of 15 and 50 is 187,813,438.⁴ Therefore 32,542,816 persons who should have been workers are without work and they were simply being wasted.

In 1938, 9,198,708 working days were lost on account of industrial disputes, which involved 401,075 workpeople.⁵ The artisans and other workers are not lucky enough to be regularly employed. Several occupations and industries are definitely seasonal such as builders' trade.

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4. Ibid., part II, p. 120.
5. Labour Gazette, June 1939, p. 768.
sugar industry, hosiery industry, cotton ginning industry. The irregular workers may be considered as without work for at least three months during the year. The cultivators too have absolute leisure from two to four months in the year. Thus wastage due to under-employment may be put at 25%. According to the All-India Conference of Medical Research Workers held in 1926 percentage loss of efficiency of the average person in India from preventible mal-nutrition is not less than 20%. According to the Census Report of 1931, the number of male earners and working dependants was 57,415,536 and 7,644,575 respectively or 105,060,111 in all. But on the above assumptions, out of the 105 million men nearly, wastage due to ill-health is 20% i.e. 21 million persons and due to under-employment 25% i.e. 26 million persons nearly.

Among the females there is an additional cause of wastage viz. useless motherhood. The average birth rate per 1,000 of seven advanced countries Canada, U.S.A., Japan, Germany, France, Italy and United Kingdom comes to 17.8. To come to the standard of these countries, we shall have to reduce our birth rate by 50%. At the present birth rate i.e. 34.5 per 1,000 of the total population of 350 million, the number of mothers comes to 12 millions and if the birth rate is reduced by 50%, their number will be only 6 million. Taking three months as the nursing period during which a woman is incapacitated for work, before and after delivery, there is a loss of labour of 1.5 million women. The female working population i.e. between the ages of 15 and 50 according to census of 1931 was 85 million. But the number of female earners and working dependants was 48 million nearly. Thus 37

2. Ibid., p. 481.
5. Census of India Report, 1931, Vol. I, Part II, p. 120.
6. Ibid., p. 206.
millions of female workers are wasted straightway and to this if we add 20% loss of efficiency of the workers due to ill-health i.e. 9 million and 1.5 million due to useless motherhood, we get 47.5 million females as wasted which is 50% of the total female effective population.

In our country, people lose vigour and zeal for work at the age of 50 but in other advanced countries, they can keep working with the same vigour until the age of 65 or 70. On this basis i.e. considering persons between the age of 50 and 60 in India and 15 and 64 elsewhere, our effective population is 50.3% whereas it is 76.3% in New Zealand, 75.1% in Australia, 63.2% in Japan, 76.9% in Germany, 74.4% in France, 72.2% in U.S.A. and 78.1% in England and Wales.¹

In the census of 1931, 1,025,678 persons were returned as afflicted with various infirmities.² This is another dead weight that the community has to carry. It is shown as unproductive and on the assumption that a person can earn at least Rs. 100/- a year, this alone means a loss of over Rs. 17 crores.

**Influence of Social and Political Structure.**

Our political and social structure is largely responsible for the non-utilisation, insufficient or inefficient utilisation of our natural resources. The absence of economic awareness has prevented the formulation of policies calculated to the exploitation of our resources always on the right lines and to the full extent and the development of our economic life in the directions best suited to India. The policy of inactivity and laissez-faire that the Government in India has been following has considerably affected our industrial structure.

The adverse influence of social conditions is only too apparent. The caste system is responsible for the

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vivisection of the Indian society and by preventing free mobility of labour, fits many a round peg in square holes. The joint-family system kills individual initiative and enterprise and reduces to the minimum the incentive to effort for self-betterment. Presence of drones in the family lessens the chances of accumulation of capital and the stay-at-home habits engendered and encouraged by the system are responsible for the maladjustment of the supply of our labour to demand for it.

The dominance of religion in India makes the people fatalists, superstitious and conservative and cuts across the organisation of economic interests. Religion also keeps millions of people away from many fruitful occupations, for instance it prohibits economic utilisation of our animal resources.

The Indian laws of inheritance make for minute subdivision and fragmentation of land holdings and almost all the ills and the difficulties of Indian agriculture can be traced to this one source. The inefficiency and backwardness of Indian agriculture is one of the greatest handicaps from which our industries are suffering. This is best illustrated in sugar industry, where the manufacturing aspect has touched a high level of efficiency but the poor quality and high cost of cane, due simply to the fact that agricultural developments have not kept pace with the manufacturing efficiency, impairs the competitive strength of our industry. To cultivate sugar cane on the lines of Java, Formosa and Hawaii, in small and scattered holdings of 1 to 3 acres is to expect a miracle. Besides, so long as the man behind the plough is illiterate and steeped in conservatism and superstition, when the methods of cultivation are archaic and obsolete and when agricultural equipment is deficient and defective, the production of raw materials of the right quality will remain an idle hope.
All these factors have conspired to keep India down. Religion makes a man fatalist, caste ties him to an occupation for which he may have no aptitude, the joint-family system makes him indolent. No wonder that Indians are poor in a rich land.

But it need not be so. Our resources are vast. The potentialities can be converted into actualities. There are no inherent deficiencies. Our men have shown their mettle in the battle fields and play grounds of Europe. The Oxford and Cambridge Universities bear ample testimony to the high intellectual calibre of many an Indian student. As for Indian Cattle, according to Sir Arthur Oliver, Animal Husbandry Expert, Imperial Council of Agricultural Research, herds of pure Indian dairy cattle have already been produced which can more than hold their own with European cattle in economy of milk and butter fat production. The quality and yield of sugarcane grown in some plots in Western India compare very favourably with the standards attained elsewhere. These are only pointers. Possibilities are vast indeed. The interest of Lord Linlithgow in Agriculture, the activities of research bodies like the Imperial Council of Agricultural Research and the Dehra Dun Forest Research Institute, the enthusiasm shown by the Provincial Governments in industrial and agricultural developments and the efforts to secure control over our fiscal policy unhindered by any unnecessary reservations will no doubt one day bear fruit and it may be hoped that the structure of Indian Industries which has so far been adversely affected by several factors will begin functioning in all its soundness.

In the next chapter will be examined the structure of Indian Industries in the past.

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CHAPTER II.

THE INDIAN INDUSTRIES IN THE PAST.

India's industrial past has a specially heartening message for us in the present. Almost at the very dawn of human history, India had evolved a very high and complex civilisation. As the present cannot but embody a series of survivals from the past, the study of India's past industrial structure is not only useful but necessary, so that we may get a clear grasp of the present and a peep, however dim, into the future.

A GLORIOUS PAST.

One thing that strikes most a student of Indian economic history, is the very high position that India had attained in the world of commerce and industry at a very early time, when the rest of the world was still in a semi-civilised state. "At a time, when the West of Europe, the birth-place of the modern industrial system, was inhabited by uncivilised tribes, India was famous for the wealth of her rulers and for the high artistic skill of her craftsmen."¹ Edward Thornton also remarks in a similar vein: "Ere yet the pyramids looked down upon the valley of the Nile, when Greece and Italy, those cradles of European civilisation nursed only the tenants of wilderness, India was the seat of wealth and grandeur. A busy population had covered the land with marks of industry."²

There were cities in India which had become the emporiums of the world. Indian manufactures were of such a high artistic merit, that they elicited a world-wide admiration. The Indian merchants and industrialists had set such high standards of business morality and integrity

that the credit they commanded in the world of finance was high and in some cases almost unlimited.

From the writings of Greeks and Kautilya it is proved beyond doubt that in the fourth century B.C. Indians were far advanced in material civilisation and conducted extensive commerce, internal and foreign. Marco Polo who visited India in the latter part of the thirteenth century shows that India maintained its ancient reputation as one of the chief marts of Asia. Another authority who bears ample testimony to the quality of our manufactures is Blacker who says "Workers in iron and steel existed long before we have record of them. 1 "The silks, the muslins, the shawls, the embroidery and the jewellery which decorated those who dwelt in Indian palaces cannot be excelled by us any more than can be the moulding and carving, the inlaying and the plaster work of those edifices themselves." 2 Elphinstone says that in the brilliancy and permanence of dyes India has not yet been equalled in Europe. 3

Such quotations can easily be multiplied. But it is hardly necessary to do so. It is generally recognised that India can show a brilliant — almost a dazzling — record of her past achievements in the field of industry.

Turning to some important industries, the cotton industry, then as now, occupied a pre-eminent position and it was the Indian cotton cloth that had won for India a name in the world. For excellent quality, the Dacca muslin even now is a household word. Sir George

2. Ibid., p. 16.
   Pandit Madan Mohan Malviya admirably sums up the whole position regarding India's industrial record in the past by citing several authorities of repute in a note appended to the Report of the Indian Industrial Commission, 1918, p. 247.
Birdwood mentions so many pretty names by which it was known. Names like Aberawen (running water), butat-bawa (woven wind), sub-nam (dew) are indicative of its fine quality. Havell calls it spider's web. According to Elphinstone Indian cotton cloth in fineness of texture has never yet been approached in any other country.

An idea as to the quality of Indian muslin can be had from the fact that a piece of 20 yards x one yard could be passed through a finger ring; a piece of muslin 15 yards x one yard weighed only 900 grains and its price was £40. Tavernier mentions that Mchd. Ali Beg, Persian Ambassador in India presented to Cha Safi II King of Persia with an Ostrich's egg which was found to contain a turban 60 cubits in length.

It was not only in quality of goods that India excelled. The cotton industry was very widely diffused and there was not a single place in which some cotton cloth was not made. Moreland says that wherever a European penetrated, he found cloth being produced along his route. Not only had India a monopoly of the home market but India-made cloth was to be met with in distant markets in Africa, Aden, and places on the Persian Gulf in the West, Ceylon in the South and Pegu, China and even Japan in the East. “Every one from the Cape of Good Hope to China, men and woman, is clothed from hand to foot in the products of Indian looms.”

7. Ibid., p. 179 quoting a Portuguese traveller.
The Silk Industry.

Manufacture of silk cloth was another important and flourishing industry carried on in India in early times. Considerable quantities of silk cloth of very good quality were manufactured at various places in Bengal, Kashmir, Agra, Lahore and Gujrat (Bombay Presidency). India was carrying on a lucrative trade in silk manufactures with Europe, particularly Rome, as well as with the Eastern countries. Sir George Birdwood mentions that in 1577 Muhiu Dik of Baldo sent three ships of Baldo Silk cloth to Russia by the Persian Gulf.¹ There is also a mention by Hunter that one Mr. Foskildt established a factory in about 1735 in Canuitie in the Birbhum District where the value of silk manufactures exceeded £160,000.² The East India Company was vastly interested in the silk industry and Eliot James refers to a series of efforts made by Europeans to improve the industry.³ According to Moreland, the total output in Bengal at the time of Akbar's death of raw silk was 2½ million pounds out of which one million pounds were worked locally, 3/4 million pounds exported raw by the batch and 3/4 million distributed over India. He puts the total consumption of raw silk, home and imported, at 3 million pounds.⁴ Even as late as 1851 it was calculated that about 229 mounds of raw silk were used in Lahore, the value of articles manufactured being estimated at Rs. 2 lakhs. At Aperseer at the same time silk goods worth Rs. 3½ to 4 lakhs were produced and 2,25 persons were employed in this work. The total silk manufactures of the

Punjab were estimated at 25 to 30 lakhs of rupees in 1894. 1

The WOOL INDUSTRY.

The wool industry too held a very important place in the economic life of India in the past. Kashmir shawls were well-known for their fine texture and some of them commanded fabulous prices. Akbar was a great patron of the wool industry and under his fostering care a flourishing woollen industry had been built up. In Lahore there were more than a thousand workshops. 2 Single carpets made in the imperial workshops measured 20 yds. long and 6 yds. wide nearly and were valued by those skilled in business at 2,716 rupees each. It is said that the carpets of Iran and Tumel were no more thought of. 3 There is a satisfactory evidence to show that carpet weaving was being carried out at Kilore (South India) as far back as 1,550. 4 In 1739, Nadir shah is said to have despatched an ambassador to Constantinople with 15 elephant load of presents in which Kashmir shawls were prominent. In the times of Zain-ul-Abidin, the Kashmir woollen industry received a great fillip. In Maharaja Guler Singh's time also 38,000 people were engaged in the industry and the exports averaged Rs. 28 lakhs. 5 Among the articles manufactured may be mentioned, the shawls of Kashmir, chadors of Bampur, pattoos of Kangra and carpets of Karanwal (Hyderabad State).

The METAL INDUSTRIES.

In the metallurgical world too, India occupied at one time a very prominent position. The traces of old

3. Ibid., p. 55.
workings in the extraction of ores and their smelting can be seen throughout the country. An ancient industrial centre over 2,200 years old has been discovered by excavations at Bajrip near Jaipur where a large quantity of iron slag has been found testifying to the existence of extensive industries. India manufactured a very high grade steel and Indians showed wonderful skill in the metal manufactures of artistic merit. The iron pillar at Delhi near Kutb Minar which is made of wrought iron is simply a marvellous achievement and this is at least 1,500 years old. All these centuries it has defied rust and the inscription is still sharp and clear. According to expert opinion, India was far ahead in this respect and had anticipated processes which came to be applied only very late in Europe.\(^1\) Specimens of iron sent to England from Kangra in 1858 and tested at the works of Bessems, Sharp, Stewart and Ilyod Forster compared most favourably with the best qualities of the English hammered and charcoal iron.\(^2\) Also, India was self-sufficient in iron. Once the East India Company sold a trial consignment at Surat but it was found that it was only a case of local scarcity and soon the supplies were attracted from other parts of the country.\(^3\)

Among the metallic articles manufactured may be mentioned, agricultural implements, hard ware, door chains, cutlery and weapons of war. Cannons of the largest calibre were manufactured in Assam. The world famous damascene blades were made of Indian woods or steel. Lahore, Gujrat and Shahpur in the Punjab made very expensive type of ornamental arms;\(^4\) Honeghyr,

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1. Sir Thomas Holland, one time Director of Geological Survey of India -- Sketch of the Mineral Resources of India, 1908, p. 5.
Bhagalpur Division of Bengal and Chittagong too were famous for the making of sharp weapons. Sir George Birdwood says that excellent steel was fused for gun barrels and sword blades along the banks of the Narbada. Mr. Watson in his Monograph on Iron and Steel works in the Province of Bengal, 1907 (p. 3) mentions a spear in the possession of Nawab of Murshidabad supposed to have been made before the Christian era and which originally belonged to Vikramaditya. He also makes a mention (p. 5) of a large gun made between 12th and 14th centuries the only breach loading gun ever attempted until quite modern times.

Other important metal industries of India were copper and brass-ware industries. Of copper industry, Rajputana was the principal centre and traces of old worksings can also be seen in Chhota Nagpur and Bundelkhand. A copper image of Buddha about 80 ft. high was erected at Nalanda in Bihar at the close of sixth century and fine Sultan Gang Buddha 7½ ft. high dating from the reign of Chandra Gupta II is a monument of the early proficiency of Indians in the art of melting and casting metal. Fifth century -- the age of Kalidas -- is said to be the period of the highest development of arts.

The brass work seen in temples and mosques speaks very highly of the skill of Indian metal workers. The extensive demand for utensils was responsible for a flourishing utensil industry in places like Benares, Nesik, Poona, Hydrabad, Moradabad. Ansmelling was practised in Cutch, Sind and the Punjab especially in Sialcot. Locks were manufactured at Bhopal in the Punjab and Aligarh in U.P. Recent Archaeological finds at Taxila and Mohenjo-Daro have proved the existence of extensive metal industries. The Board of metallic

1. Sir George Birdwood -- Industrial Arts of India, 1880, p. 171.
articles which have been discovered in C.P. contains as many as 424 specimens of almost pure metal weighing in all 829 pounds, besides 102 ornamental articles of silver.

The other industries which were also carried on fairly extensively were wood-work consisting mainly of the manufacture of bedsteads, stools, chests, leather industry making mostly the native shoes and round leather cases, paper industry making paper by hand, shipping industry, lac industry and pottery industry. Some weak stock.

This is no doubt an excellent record of which any country may justly be proud. But in this enthusiastic admiration of India's past, one is likely to overlook the less praiseworthy aspects of our industrial structure. There were certain deficiencies which it is also necessary to bear in mind. Although in the manufacture of certain goods, India had won world-wide celebrity, yet it is wrong to infer that there was any widespread and diversified industrialisation in the modern sense of the word. It is wrong to believe, as some people do, that in matters industrial, we are now worse than we were in the past.

Some industries were carried on only intermittently, for example extraction of iron ores had to be abandoned as soon as a particular deposit was exhausted or when local wood supplies were depleted, although in the latter case, abandonment was only temporary.

It cannot be said that the country's income from industries reached anything like the modern standards or that the volume of industrial production relative to population was very large.

Besides, the industrial production was more for the classes than for the masses, for most of the world-famous Indian products were luxury articles. Also the

1. Dass, S. K. -- Economic History of Ancient India (Calcutta, 1925), pp. 3-44.
craftsmen: (a) The independent cottage worker buying his own raw material and independently selling his product; (b) the cottage worker who was supplied raw material by a middleman especially in industries using costly raw material and to whom he was obliged to sell his product on rates often settled beforehand; (c) a craftsman after attaining a measure of prosperity became a contractor and not the thin s made by the artisans by distributing to them the raw material in their own houses and paid them wages; (d) lastly there were karkhanas (workshops) mostly run by the state, where the craftsmen were collected in one place and made to work under instructions of the state officials. Even here no machinery was used. Contracting and subcontracting was common.

But the dominant type of organisation was the individual manufacturer, owning his own tools and working independently without any capitalistic direction except when either the state had come to be interested or when a large foreign market had to be catered for. This was the case only in very big cities, generally the seats of government. In the typical unit there was no differentiation between the functions of the management and manufacture.

Only in the production of specialities, there was territorial division of labour, otherwise production was diffused rather than concentrated and the craftsmen generally catered for the local market which on account of highly unsatisfactory means of transportation and communication must have been exceedingly narrow and restricted.

In view of the scanty resources at the command of the artisan, the costliness of the materials used, the primitive methods of work, and the absence of machinery, the scale of production must have been very small. The ordinary furnace yielded a quantity of iron five to ten
high cost was not so much due to the high cost of manufacture as to the costly material used e.g. in iron, silk and cotton goods. The price of sugar in the beginning of 19th century was Rs. 25 or Rs. 30 per maund. 1 Obviously ordinary people could not afford to buy it at such a high price.

Several of the modern industries, which are the products of Industrial Revolution like cement industry, chemical industry and flour milling industry could hardly be expected to have come into existence. Although white sugar was made in many parts of the country, yet the sugar industry mostly meant the making of Gur or brown sugar. According to Moreland, even in the palaces of kings, there was little furniture of the modern type. 2 Similarly Sir George Birwood remarks (Industrial Arts of India, 1930, p. 199) that furniture was chiefly conspicuous by its absence. Modern varieties of leather goods were unknown. In the iron industry, only small articles were manufactured and production of modern heavy goods could not even be dreamt of.

INDUSTRIAL ORGANISATION IN THE RAIL.

Industrial organisation differed in the rural and urban centres. In the rural areas the artisans generally worked to order on the material supplied by the customer, and he got his remuneration in kind. Some of the artisans were paid a customary quantity of grain at the harvest time. The artisan worked in his own house assisted by other members of his family with an imperfect division of labour. The complex problems of marketing and exchange had hardly to be faced.

But in the urban centres, the organisation was more complex. We can broadly distinguish four types of

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2. Ibid., p. 161.
tons in a year, which a modern furnace can produce in a day.

There existed, however, in important industrial centres, well-organised craft and trade guilds. Each separate guild was managed by a court of Aldermen called mahajan. The seers or chiefs of the guild, ordinarily two in number, held a specially prominent position which they got by hereditary right. The only other office-bearer was the salaried clerk or the gumeshta. Membership of the guild was hereditary but the new members also could be admitted on payment of entrance fee. However, no unqualified persons could remain in or even enter the guild. There was no compulsory apprenticeship but every boy born in the working caste, of necessity, learnt his father's craft. The guilds commanded a great influence in the cities. The Nagar Seth (the city Lord) who was the head of the guild was also the highest personage in the city and was treated as its representative by the government.

But the artisans were not economically well off.

Bernier speaks of the workmen paying for a work of art considerably less than its real value and according to their caprice. "Nothing but sheer necessity or blows from a cudgel keeps him (the artisan) employed." The actual worker thus, did not get more than a mere subsistence. The high cost of raw material and the heavy burden of taxation, for there were taxes on all kinds of manufactures threw the artisan into the arms of the middle-man. The artisan was therefore either fleeced by the all-grasping middleman or he was simply drafted into one of the state karkhanas at a mere pittance. Exploitation was the rule.

It is a pity that the excellent quality of the product and the miserable condition of the artisan were co-existent. The artisans of the past deserved much better as his services to the community were of a higher order, for in the words of George Unwin "the medieval craftsman was a pioneer engaged in opening up the virgin soil of industry, whilst the modern craftsman is a poor gleaner in a field which has already been swept by the machinery of larger systems of production."

**THE CHANGE.**

India at one time occupied a very respectable position in the world of industry with highly skilled craftsmen and enterprising traders. Industrial organisation in the big cities was quite efficient. Besides the production of cheap and simple goods for local consumption, there was a certain amount of localised manufacture of specialities for export and for consumption at the courts.

But such a position was not destined to last. Through a progressive ruralisation to which the figures of successive censuses bear ample testimony, India has landed into a position where she is mainly a producer and exporter of raw materials and importer of manufactured products. It is not possible to say when precisely this change took place. Social and economic changes creep in stealthily and to assign definite dates to such changes is a fruitless endeavour; nor is it necessary.

Several causes have conspired to bring about this change. The disappearance of the native courts and the royal houses as the result of the expansion and consolidation of the British power deprived the industries of the fostering care that they had enjoyed so far. The new aristocracy steeped in western ideas and

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educated on western lines was a poor substitute and its inability or unwillingness to pay the proper price led to the vitiation of taste and considerable thinning down of the quality. The administrative centralisation weakened the craft guilds where they existed and deprived the industry of wholesome regulation.

The policy of the British Government and that of the East India Company, under the influence of the laissez-faire doctrine has also some thing to do with it. Some people attach quite an exaggerated importance to the adverse working of the political factor; for them it seems to be a convenient peg to hang all their ills on. But it is difficult to subscribe to the view that the British government was entirely or mostly responsible for the decay of Indian industries. The main reason to my mind is the coming on of the Industrial Revolution in the West. It is certain that

The Indian industries were bound to wither under the new conditions. No system of government or executive fiat could prop them up. The conditions that brought about Industrial Revolution in England plainly did not exist in India. The more important of them were: an outburst of inventive genius, command over capital and expanding markets, training in large scale business and a free enterprising nation. The state did not come in. It is therefore idle to expect that the Indian government of the day could bring about an identical revolution here. Thus the decay of Indian industries in the face of mass production of goods by machinery in the West was only a question of time. The utmost that could be expected from a national government was not to arrest the decline but to build anew and modernize the methods, keeping foreign competition at bay. By the time the East India Company had hardly become a paramount power, the West had stolen a march on us and there was no question
on us and there was no question that the supremacy must pass from the East to the West. Not only politically but socially and otherwise we were ill-prepared to cope with the conditions of the changed industrial world. Lacking in the spirit of enterprise and progressive attitude of mind, without any capitalism and direction and wedded to the antiquated and hereditary methods of production, our artisan felt simply stunned by blows from the foreign manufacturer. His discomfiture was only a foregone conclusion.

These are the general causes which brought about the change in the situation, although different industries were hit by a different set of special causes. For example, the Kashmir trade in shawls was ruined through the quickness with which the caste weavers adopted 'improved' shawl patterns which the French agents of the Paris import houses set before them. Silk industry suffered from numerous restrictions imposed on Indian silk in England with a view to protect the Spitalfield Silk Industry. Also, a superior quality of silk produced under the Mediterranean climate adversely affected our silk industry, for our silk, as compared with theirs was short-stapled, unclean, coarse and endy or broken. The decline of high-class carpet industry is said to be due not so much to the deterioration of the skill of the weavers, as to the falling off of demand for such articles in the Indian markets with a corresponding increase in demand for jaff carpets and cheap imitation carpets of European manufacture. The iron and steel industry declined due to the disappearance of medieval warfare, the Arms Act, the restrictions on cutting of trees and foreign competition, where a single blast furnace could turn out hundreds of tons of iron while our furnace produced only a few sees.
CONCLUSION.

We hold a glorious position in the past. But somehow we have lost it. Having a long and glorious history at our back, we may be inclined, with a pardonable pride, to live a little too much in the past. But the attitude of 'pidam sultan bhood' (My father was a king) is not very helpful. Our chief concern should be with the present and the future. We must therefore turn to the examination of the present industrial structure of India to which the chapters that follow are devoted.
CHAPTER III.

THE INDIAN COTTON INDUSTRY.

The study of the cotton industry in India may be conveniently divided into two sections: (a) The Handloom Industry; and (b) The Cotton Mill Industry.

THE HANDLOOM INDUSTRY.

In the making of cloth by hand, India had attained a position of incredible perfection about three thousand years ago. A sample examined by Dr. Taylor in 1846, measuring 1349 yards weighed only 22 grains, which comes to 250 miles to a pound of staple and according to modern standards corresponds to 524's counts. This is a feat which modern machinery has yet failed to accomplish.

PRESENT POSITION.

The advent of the cotton mill industry which happens to be more vocal and impressive seems to have eclipsed the handloom industry and an impression has gone round that the handloom industry is in a decadent state or that it is unimportant. This impression is undoubtedly wrong. Of the total cloth produced in the country in 1938-39, the handlooms contributed nearly one-third.

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2. The Indian Mill Production was 4269 million yards (vide Monthly Statistics of Cotton Spinning and Weaving in Indian Mills, March, 1938, p. 2). The Handloom production was approximately 1916 million yards and has been ascertained as follows: The total yarn consumed by the Indian mills has been ascertained by converting 920 million pounds of woven goods (the quantity made in 1938-39) into yarn at the rate of 100 lbs. of yarn = 112 lbs. of cloth. This comes to 821 million pounds. This is then deducted from the total quantity of yarn available for consumption in India which was: Imports 36 million lbs., minus Re-exports one million lbs., plus Indian Mill production 1303 million lbs., minus exports 38 million lbs. = 1300 million lbs. The balance of yarn available for handlooms is thus 1300 minus 821 = 479 million lbs. This is then converted into cloth at the rate of one lb. of yarn = 4 yards of cloth. The handloom production in 1938-39 thus came to 1916 million yards. Therefore the total produc
The handloom industry supports not less than ten
million people, a number which is exceeded only by
agriculture. The Tariff Board on Cotton Textile
Industry, 1932 estimated the number of handlooms in the
country at 2,500,000. If each loom produces an
average 7½ yards of cloth per day, all the looms working
200 days in the year can produce 3,750 million yards of
cloth (vide Report, p. 157). About the importance of
the handloom industry and its potentialities, therefore,
there cannot be the least doubt.

The handloom industry is also not decadent. That
this ancient Indian art is not dead has been proved by
an exhibit of a piece of fine Banar muslin measuring 11
yards and weighing 10 toins shown in the exhibition
organized by Bawa Singh Conference held at Benkalade in
February 1940. In recent years the handloom industry
has manifested renewed vitality. The consumption of
yard by the handloom and the production of cloth by
them has been steadily increasing as is shown below: 3

<table>
<thead>
<tr>
<th>Yarn available for consumption for the handlooms.</th>
<th>Production of Piece Goods by Handlooms.</th>
</tr>
</thead>
<tbody>
<tr>
<td>lba. (Million)</td>
<td>Yards. (Million)</td>
</tr>
<tr>
<td>1899-1900</td>
<td>220</td>
</tr>
<tr>
<td>1912-13</td>
<td>260</td>
</tr>
<tr>
<td>1925-26</td>
<td>290</td>
</tr>
<tr>
<td>1938-39</td>
<td>479</td>
</tr>
</tbody>
</table>

(continued) of cloth in India is equal to 4269 plus 1916
- 6185 million yards. This however does not take into
account handspun and hand-woven cloth which must be
considerable in a country like India. The All-India
Spinners’ Association which covers only a fraction of
the spinning work done in the country had in 1937,
1,72,033 spinners on its register (vide its Report
for 1937, p. 9).

1. Report of the Indian Tariff Board regarding the grant
   of protection to the Cotton Textile Industry 1932,p.157

2. For estimate of looms and weavers in the various
   provinces reference may be made to the Report of the
   proceedings of the Seventh Industries Conference held
   in October, 1935.

3. For figures for 1899-1900, 1912-13, 1925-26 See
   Appendices III and IV to the Report of the Indian
   Tariff Board (Cotton Textile Inquiry), 1927, pp. 231-239.
   Those for 1938-39 have been calculated as indicated
   in foot note pp. 34-35. A pamphlet prepared by the
   Bombay Millionaires’ Association at the instance of
   the Government of India for the benefit of the delegates
   of the Eastern Group Conference shows that the hand-
   loom industry has recently been producing on the
   average about 2,500 million yards of cloth per annum.
It will appear that the improvement during the period 1925-26 to 1935-39 has been particularly remarkable. Increase in the first 25 years of the present century was 32 per cent while it was 65 per cent during the last 13 years. The handloom industry therefore is neither decadent nor unimportant as it may appear to a superficial observer.

**CAUSES OF SURVIVAL.**

It is clear that the handlooms and the mills are not necessarily antagonistic to each other. They have their separate markets to cater. No doubt the mills have been capturing an increasing share in the home market. But they have only gained at the expense of the imports and not at the expense of handlooms. The handlooms turn out specialised types of production which are not suitable for mass production, for it will be obviously uneconomical to set up machinery for the manufacture of cloths of elaborate designs for which the demand may be limited, fitful and fluctuating.

Further, the hand-made cloth is considered by many to be much better than the mill-made cloth, for it is thought to be cool in summer, warm in winter, more elastic and absorbent of perspiration and one that stands washing better. Cheapness and simplicity of the weavers’ appliances, inertia and conservation of the weavers, advantages of working in one’s home with free and willing assistance of the inmates and proximity to market are some of the factors which have assisted in the survival of the handlooms.

Besides, the Indian National Congress has lent the Handloom industry its political prestige and the soul-stirring writings of Mahatma Gandhi have carried the message of the Khadi to the remotest corner of the country. The activities of All-India Spinners’ Association have given it a great stimulus. In one year alone i.e., 1936-37, it increased its production
from 1,455,752 lbs. to 1,832,641 lbs. and from 4,470,631 sq. yards to 5,567,513 sq. yards or 24.9 per cent. ¹

The Government, too, has not lagged behind in its solicitude for the uplift of this industry. In 1934 was inaugurated five year's scheme for helping the handloom industry by a yearly contribution of Rs. five lakhs by the Government of India towards the expenditure of Provincial Governments incurred in the development of this industry. This scheme which has now been extended for two years till March 1942 has given great impetus to the handloom industry.² During the short period of four years 1934-35 to 1938-39 that the scheme has been in operation, the production of cloth by handlooms has increased from 1,460 million yards³ to 1,916 million yards or 31 per cent nearly. In other words the handloom industry in these four years has made nearly the same progress as it did in the first quarter of the present century.

The activities of the various Provincial Governments, under the centrally financed schemes, have covered almost all aspects of the industry e.g. introduction of improved looms and appliances and supplying them on hire-purchase system, introduction of new and marketable designs, improvement in the preparatory and finishing processes, dyeing and printing in fast colours, supply of intelligence regarding rates of raw material and supplying raw material at reasonable rates, assisting the marketing of the handloom products by subsidising private firms, opening depots and receiving goods on consignment.

¹ Report of the All-India Spinners’ Association, Ahmedabad 1937, p. 15.
² For detailed activities of the Provincial Governments under this scheme vide Reports of VII, VIII, IX, X, XI, Industries Conferences convened by the Government of India.
³ Review of the Trade of India, 1936-37, p. 43.
account against partial payment. In some provinces have been set up power-driven warping and sizing machinery to supply the weavers ready warp beams suitable to their requirements. The Bombay Government has given a grant of Rs. 10,000 to the All-India Spinners' Association for experimental work in improving weaving and spinning appliances. Thus the problems of production, marketing and finance have been simultaneously attacked and as this work has been done through the agency of the cooperative societies, weavers have benefited not only economically but also morally and educationally.

From the working of these schemes definitely encouraging results have been achieved. Through the marketing organisations set up under the schemes, sales amounting to Rs. 90,932 were effected in 1938 in Madras, Rs. 1,17,000 nearly in Bombay, Rs. 1,40,376 in Bengal, Rs. 3,00,848 in U.P., Rs. 21,880 in C.P. and Berar and from Bihar Rs. 71,091 Indian sales, Rs. 29,931 sales in Newzealand and Rs. 31,044 in London. U.P. Government has been able to introduce 494 new designs since the inauguration of the scheme. During the year 1938, Bengal Industries Department held 724 demonstrations, trained 2,124 weavers and introduced 150 new designs. In U.P. it is reported that the income of weavers working under the scheme has been increased 100 to 200 per cent. The total value of appliances supplied in U.P. amounted to Rs. 5,432. The Cottage Industries Institute in Bihar has successfully demonstrated the spinning of 60s and 80s counts. Syed Ushreful-Hussain of the Bengal Cooperative Department has invented a new spinning wheel in which five bobbles can be wound at a time.

A spinning wheel invented by Mr. Hans Raj "Wireless" which enables a person to spin 1¾ seers of yarn in 8 hours is attracting wide attention. It is said that
even a child can work it and that by its aid a person 
can earn Rs. 25/- per month.

SOME SUGGESTIONS FOR FURTHER IMPROVEMENTS.

No doubt much useful work has already been done 
but owing to the proverbial apathy and conservatism of 
the Indian weaver, progress must needs be very slow. 
Illiteracy is also a handicap. Scattered nature of the 
industry thwarts effective organisation; lack of 
publicity restricts the demand; and to cap all, the 
appalling poverty of the weavers hampers any kind of 
progress. In view of these handicaps of a serious 
nature and in view of the great magnitude of the 
problem, more vigorous and persistent efforts are 
called for and more drastic remedies must be applied. 
We have yet hardly touched even the fringe of the 
problem. All the activities in which the Provincial 
Governments are now engaged will have to be further 
extended so as to cover almost all weavers in the 
craft. Not only this, if the hand-made cloth is 
successfully to face the competition from the mill- 
made cloth, much more effective aid will be necessary. 
For it has to be remembered that although the production 
by hand looms has been steadily going up it has not 
been able to improve its position relative to the mill 
industry. In 1912-13 the mills and the handlooms both 
had the same share viz., 20% each in the total quantity of 
cloth available for consumption in the country, whereas in 1938-39 the share of mills was 63.6% and that of 
handlooms was only 28.5%. It has thus been practically 
marking time.

The organisation of the weavers on the factory 
basis placing them under capitalistic aid and direction 

1. Figures for 1912-13 have been calculated from page 43 
of the Review of the Trade of India, 1936-37 and for 
1938-39 from the Monthly Statistics of Cotton 
Spinning and Weaving in Indian mills, March 1939 and 
the Review of the Trade of India, 1938-39.
will remove most of their difficulties. The Bengal Industries Department is already making efforts in this direction. The Director of Industries in the Annual Report for 1934-35 (Page 4) mentioned that he saw in his tour whole communities of handloom weavers organised under the direction of master weavers. Many such factories are working in the Punjab.

Then, the sphere between the mills and the handloom weavers should be statutorily defined. The mills for instance should not be allowed to produce cloth below certain counts, say 12s or 15s and beyond certain counts say 70s or 60s. Also, mills should be compelled to supply suitable yarn at reasonable rates. The U.P. Memorandum submitted to the Ninth Industries Conference held in 1937 (vide Report of the proceedings, p. 70) pointed out that the weavers got yarn of indifferent quality and even the quantity per bundle was not guaranteed.

Granting of protection to the cotton mill industry adversely affected the handloom industry (vide Indian Report of the Tariff Board on Cotton Industry, 1932, p. 170). Therefore steps should be taken to relieve the handloom industry of the double competition of foreign and home mills by giving it proper protection.

Above all, the Government of India Scheme of Subsidizing Provincial Governments in the development of the handloom industry should be continued for 20 years more and the grant should be raised to 10 lakhs a year. Only then the handloom industry will come into its own.

CONCLUSION.

It is the opinion of experts that the handloom

1. A note in the Journal of Indian Industries and Labour, Vol. 2, Part II, February 1922, by R.D. Bell stating that a conference of textile experts held at Patna were of the opinion that handlooms could successfully compete with the mills.
industry can successfully compete with the mills, if properly organised. If only the process of the rejuvenation that has started continues and all possible steps as indicated above are taken, the handloom industry may be assured of a respectable position in our economic life.

THE COTTON MILL INDUSTRY. 

The cotton industry occupies a position of unique importance in our country. It has been estimated that nearly 100 crores of rupees worth capital is invested in the industry.\(^1\) It provides employment to nearly half a million workers and their families and if we take into account the number of people engaged in the cultivation and distribution of cotton and the dealers in cloth, it will probably be an under-estimate to say that roughly speaking 15 million persons\(^2\) directly or indirectly depend upon the cotton industry for their livelihood.

From small beginnings in the middle of the last century, the cotton mill industry, not unnaturally passing through various vicissitudes, has grown to huge dimensions. In the half century (1887-1937), the number of mills increased 270 per cent nearly,

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1. Mody, H. F. -- An article contributed to the Jubilee Number of Capital, 1938, p. 99.

2. On the assumption that each worker supports four persons, the number of workers and their families can be ascertained. Assuming 70 per cent of the total population as depending on agriculture, total agricultural population can be found out. Of this those engaged in cotton cultivation can be found by the ratio that the area under cotton bears to the total area under cultivation. Taking figures from the Agricultural Statistics of India for 1935-36, Vol. I, and Vol. II and assuming 400 million to be the approximate population, the number of persons engaged in cotton cultivation works out at 17 million and to this if you add two million workers and their families, you get 19 million. Hence 15 million persons is an under-estimate.
the number of spindles 400 per cent, the average number of hands employed daily 500 per cent and the cotton consumed nearly 300 per cent. We are now within a measurable distance of meeting all our requirements of cloth. In 1899-1900, the share of Indian Mills and of imports in the total cloth available for consumption in India was 12 per cent and 61 per cent respectively. But in 1938 the corresponding figures were 63.6 per cent and 8 per cent respectively. So the tables have been completely turned.  

We shall now examine the structure of the Cotton industry in its various aspects.

RAW MATERIAL.

No elaborate research is necessary to show that India at one time produced very good quality of cotton. Dr. Forbes Royle quotes numerous authorities to show that the quality of Indian Cotton was much appreciated in the first half of the 17th century. The Ahmedabad millowners in a statement to the Indian Tariff Board 1927 pointed out that India used to produce cotton which was capable of being spun into 100s and 120s.  

If any further proof was necessary, it has been recently


Total Quantity of Cloth available for consumption in India in 1938-39.

Total Mill Production. 4,239 million yards.
Add handloom Production. 1,916
Add Imports. 647
Less re-export. 44 is equal to 633/4
Less exports. 117
Total available for consumption in India is equal to 6,701 million yards.
Share of the mills comes to 63.6 per cent, that of the handloom 28.8 per cent and that of imports 7.6%.

2. Dr. Forbes Royle -- Culture and Commerce of Cotton in India and Elsewhere, 1851 (London), pp. 96-98.
furnished by the examination, at the Technological Laboratory Matunga, of the small pieces of fabrics unearthed during the excavation at Mohenjo-Daro. 1

India possesses a soil and气候 very suitable for the cultivation of cotton to an almost unlimited extent. Even the growing of high grade cotton having a staple of \( \frac{1}{8} \) " or \( \frac{1}{4} \) " and capable of spinning up to 60s warp has been shown to be a practical proposition in certain parts of the country.

As a result of the efforts made to improve the quality of Indian Cotton by seeds selection, hybridization and the importation of exotics, the quantity of long staple cotton over 1" increased from 12,000 bales in 1930-31 to 85,000 bales in 1935-36. The report on the staple length of the Indian crop of 1938-39 season, which places the total production at 5,120,000 bales of 400 lbs. each, says that 5 per cent of the total is of the staple length of one inch and over and 32 per cent of the staple length 7/8" to 31/32". 2

Part of the long staple cotton grown in India is, however, rendered unsuitable for use in the mills--in account of unevenness of the staple or lack of strength or admixture in marketing. This improvement in the staple length has led to more Indian Cotton being consumed by the Indian Mills. In 1933-34, 2,289,830 bales of 400 lbs. each of Indian Cotton or 35 per cent of the total crop were consumed by the Indian Mills. But the corresponding figure in 1938-39 was 3,105,000 bales or 62 per cent.


2. According to the Statistical Leaflet No. 1, 1933-40, issued by the Indian Central Cotton Committee, the Indian Cotton crop of 1939-40 season can be classified as regards staple length as follows:

<table>
<thead>
<tr>
<th>Type of Cotton</th>
<th>Length</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Staple</td>
<td>over 1 inch</td>
<td>66,000 bales of 400 lbs. each</td>
</tr>
<tr>
<td>Medium Staple A</td>
<td>1 inch</td>
<td>242,000</td>
</tr>
<tr>
<td>Medium Staple B</td>
<td>7/8 to 1 inch</td>
<td>1,576,000</td>
</tr>
<tr>
<td>Short Staple A</td>
<td>11/16 to 27/32nds</td>
<td>841,000</td>
</tr>
<tr>
<td>Short Staple B</td>
<td>9/16 to 21/32nds</td>
<td>240,000</td>
</tr>
<tr>
<td>Short Staple C</td>
<td>17/32nds &amp; below</td>
<td>1,017,000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>4,984,000</td>
</tr>
</tbody>
</table>
nearly. In 1938-39 imports of foreign cotton also decreased from 753,000 bales in the previous year to 540,000 bales. It is hoped that before long India will be able to do without imported cotton.

The quantity of long-staple cotton grown in India now varies nearly approaches to what our mills require for spinning all their fine yarn. In 1938-39, the total quantity of yarn spun from 24s to 40s by the mills in India came to 377 million lbs. nearly. Taking 115 lbs. of cotton to 100 lbs. of yarn, the basis of calculation by the Indian Tariff Board 1932 (vide report, page 108), it will require 445 million lbs. of cotton. But 37 per cent of nearly 5 million bales of 400 lbs. each that we produced in 1938-39 and which can spin these counts, gives us 740 millions lbs., a part of which is of course unsuitable for various reasons. Moreover, tests have been conducted in the Technological Laboratory of the Indian Central Cotton Committee to see if good quality Indian Cotton can be used to spin finer counts. A bulletin (Bulletin A 44 - Further Tests) issued by the laboratory shows that it is possible by combing to

2. According to a pamphlet prepared by the Bombay Millowners' Association at the instance of the Government of India for the benefit of the delegates to the Eastern Group Conference, the Indian Cotton Mill Industry consumed on the average in the last 3 years about 3.4 million bales of cotton of which half a million bales were imported and 2.9 million bales were Indian grown. The average cotton crop was 5.7 bales ainely. Allowing half a million bales of Indian cotton for extra factory consumption this leaves 42 average exportable surplus of 2.3 million bales.
4. Total production of Cotton for 1939-40 has been estimated at 4,942,000 bales (400 lbs. each) as compared with 5,076,000 bales in 1938-39. See Indian Trade Journal, September 5, 1940, p. 638.
the extent of 20 per cent to spin 50s to 60s counts from Indian Cottons which when carded only spin 30s.
Combining also gives better orientation to the fibres in the sliver and makes them lie more nearly parallel to one another than is otherwise possible.

In their efforts to go 'fine' the Indian mills have been also using larger quantities of foreign cotton. The imports of foreign cotton thus increased from 120,000 bales in 1932-33 to 780,000 bales in 1937-38\(^1\) or 568 per cent. Of the total receipts of foreign cotton at the Indian mills in 1932-33, 26.3\% was received by the mills in Bombay Province alone and within this province Bombay's share was 44.8\% and Ahmedabad's 51.5\%.\(^2\) During the years 1934-35 to 1936-37, however, Bombay's share was 20.4\%, whereas Ahmedabad's share was 36.9\%. (vide Report of the Textile Labour Enquiry Committee, 1938, p. 70). This shows that, although Ahmedabad continues to lead in the consumption of foreign cotton for its finer production, Bombay is also rapidly coming up.

In recent years, the mills have been using mixings to a very large extent. Belief against mixing was fairly common at one time. But tests at the Technological Laboratory have shown that there is no difficulty in spinning yarns from mixings of two cottons differing by as much as 40 per cent in fibre weight per inch and 4\" in staple length.\(^3\)

In order that fullest possible advantage may be taken of the proximity to raw material, an economical system of purchase is an imperative necessity. Of the two systems prevalent one, namely employing buying

\(^1\) Review of the Trade of India 1938-39, p. 249.
\(^2\) Statistical Leaflet No. 3 issued by the Indian Central Cotton Committee, in December 1939.
\(^3\) Research in Cotton etc. (1924-35) by Nazir Ahmad 1935, p. 60.
agents in the cotton growing districts, enables a
mill to get the required quantity at a lower price
eliminating middle-men's profits. But as requirements
of the whole year are bought in the cotton season,
the system besides importing in freight, and speculating,
entails higher interest and insurance charges. It is
especially more speculative outside Bombay where there
are no organized future markets. Even in Bombay, on
account of difference of opinion between the East India
Cotton Association and the Bombay Millowners' Associa-
tion on the system, buying contracts satisfactory to
the mills are not available. The second, 'hand-to-
mouth' system, i.e. buying cotton in the Bombay market
as and when needed enables the mills to have a wide
range of choice, middle-men's profits are also kept
low by competition; they also save in the interest and
insurance charges. But the prices they have to pay are
generally higher than those prevailing in the cotton
season. Also, the quality that they may require may not
always be available. The first method is better in a
rising market and the second in a falling one. Each
individual mill has to fix upon the method most suited
to itself.

The arrangements regarding the purchase of cotton
have been subjected to severe criticism. The following
statement was shown to the representatives of the
Bombay Millowners by the president of the Tariff Board,
1927.1 'The signed order for 100 bales of best grade
cotton starts on its travels from the managing agents'
desk and somewhere down the line in his office forces,
it reaches an employee who makes a private arrangement
with the cotton broker which transforms the order into
one for 100 bales second grade cotton or perhaps 50
of the first and 50 of the second. Further intervention

1. Report of the Indian Tariff Board (Cotton Textile
on the part of the expert graders results in the final delivery to the mill of say 80 bales of the third grade cotton. Although this statement was described by the mill owners as a libellous act of lies, and although it is undoubtedly an exaggeration, yet it will be too much to say that such cases do not occur in view of the low standard of integrity of the petty clerks in India. Hence a closer control over arrangements for the purchase of cotton is necessary.

Besides, it may be noted that no attempts are made by the mills to purchase their supplies of raw material collectively. It is well-known that in advanced countries like Japan, principles and practices of high commerce are freely applied to the purchase of raw materials. Unless similar methods are adopted here and some common buying organisation evolved, the Indian Cotton Industry not only will not be able to maintain its position in the foreign markets but will also have to face constant menace of foreign competition at home.

LOCATION OF THE COTTON MILLS IN INDIA.

It is rather curious that the cotton industry came first to be located in Bombay, which except a favourable climate could offer no apparent advantage. Even of the humidity of its climate it did not avail by spinning finer counts which were left to Ahmedabad. The reason, why mills came to be established in Bombay, seems to be that for long Bombay was the chief exporting port for cotton and had a large share in the import trade of yarn. We know that the industry was at first primarily a spinning one and therefore this must have been a controlling factor. The other contributory causes probably were the availability of entrepreneurial and managerial ability and presence of some enterprising financiers.
Now at this stage Bombay does offer certain advantages but so do the other centres too. The advantages of Bombay lie in the humidity of its climate, trained labour, availability of supervisory and technical staff, more economical purchases of imported cotton, machinery and mill stores, lower office expenses on account of greater concentration of management in the same hands and better banking facilities. But it suffers from greater distance from the cotton growing districts and consuming centres and from the fact that wages, cost of fuel and power, water charges, and local taxation are considerably higher at Bombay than at other centres.\textsuperscript{1}

The centres like Ahmedabad, Sholapur, Nagpur and Cawnpore on the other hand enjoy greater proximity to raw material, nearness to markets and closer acquaintance with the needs of the locality and cheaper labour. Nagpur and Cawnpore have also the advantage in proximity to coal. The mills situated in the cotton-growing districts have a special advantage in the counts for which those cottons are suitable, for example the mills in Northern India have an advantage in lower counts, those of Madras and Mysore in higher counts and of Sholapur and Nagpur in medium counts.

The Indian States have still greater attraction. The Barbars offer free land. The labour is cheap and the level of taxation low. It was pointed out to the Tariff Board, 1927, how there was a protective duty of 5 per cent on imported goods in Indore and there was no income tax or super tax. The Gwalior State sent a circular to the managing agents in Bombay offering free land and loan at 5 per cent. In 1920-21 seven mills were established in Baroda and the state advanced one-

\textsuperscript{1} Wages in Ahmedabad, however, have been higher than in Bombay. A controversy has been going on recently as to whether wages are higher in Bombay or in Ahmedabad. (See \textit{Indian Textile Journal}, July 15, 1940, p. 276.)
third of the amount needed for the block. There is a tax on export of cotton from the "sizam's dominions. On account of this wooling on the part of the states, the number of mills there has been on the increase. On the whole, the balance seems to be against Bombay and further decentralisation of the industry may reasonably be expected. One centre which is eminently suitable for further expansion of the cotton industry is Bengal. It has everything in its favour except conditions relating to the growth of the raw material. Climate is otherwise favourable, land, labour and electric power is cheaper; coal is next door; water is almost free and municipal taxes are very low. Bengal is a big consumer of cotton goods. But it lacks in experience and capital. It is high time that some Western India millowners turn their attention to this promising field of industrial enterprise.

The "away-from-Bombay" tendency of the industry is illustrated by the following table which shows how the centre of gravity in the cotton mill industry shifted during ten years 1927-1937.

(Table is enclosed)


<table>
<thead>
<tr>
<th></th>
<th>Number of Mills</th>
<th>Number of Spindles</th>
<th>Number of Looms</th>
<th>Production of yarn (Millions of lbs.)</th>
<th>Production of woven goods of all descrip (Millions of lbs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bombay Island</td>
<td>53</td>
<td>69</td>
<td>3,466,325</td>
<td>2,839,309</td>
<td>74,545</td>
</tr>
<tr>
<td>Ahmedabad</td>
<td>66</td>
<td>81</td>
<td>1,402,948</td>
<td>1,976,370</td>
<td>30,721</td>
</tr>
<tr>
<td>Rest of India</td>
<td>220</td>
<td>220</td>
<td>3,332,936</td>
<td>4,364,919</td>
<td>50,686</td>
</tr>
<tr>
<td></td>
<td>336</td>
<td>370</td>
<td>3,702,766</td>
<td>9,739,794</td>
<td>161,950</td>
</tr>
</tbody>
</table>

Percentage of:-

| Bombay to all India| 24.7 | 18.6 | 39.37 | 25.7 | 46.9 | 35.7 | 39.3 | 28.4 | 46.9 | 22.0 |
| Ahmedabad to all India | 19.8 | 22.0 | 16.3 | 20.3 | 19.9 | 24.7 | 13.7 | 15.9 | 19.8 | 21.0 |
| Rest of India to all India | 55.7 | 59.4 | 44.3 | 53.3 | 55.9 | 41.6 | 47.0 | 55.7 | 33.6 | 45.0 |
A number of inferences can be drawn from this table.

1. Inspite of the frantic efforts made in recent times by Bombay to rehabilitate her position by adopting measures relating to reorganization, financial reconstruction, rationalization, diversification of production and building up of export trade, Bombay still continues to lose practically at the same rate. In the number of mills its percentage share came down from 32.9 in 1919 to 24.7 in 1927 and to 18.6 in 1937; in the production of yarn, her share decreased from 49.7 per cent in 1919 to 38.3 per cent in 1927 and to 28.4 per cent in 1937; in the quantity of goods woven, her share decreased from 50.6 per cent in 1919 to 46.9 per cent in 1927 and to 32.8 per cent in 1937. Thus in the yarn produced and goods woven decrease in the years 1927 to 1937 was much greater than it was in the years 1919 to 1927.

Similarly during these ten years, her share in spindles decreased from 39.7 per cent to 29.7 per cent and in looms from 46.0 per cent to 33.7 per cent. But Bombay is still the most important single centre of the industry. 2

2. The loss of Bombay is the gain of the rest of India. During the whole of the post-war period, the rest of India has continued to increase in every respect at a uniform rate. The rest of India now occupies a very important position. It claims to

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2. According to a pamphlet prepared by the Bombay Millowners’ Association at the instance of the Government of India for the benefit of the delegates of the Eastern Group Conference, there are at present 389 Cotton Mills in India with about 10 million spindles and 200,000 looms. About 60% of the spindles and 70% of the looms are located in the Province of Bombay. Ahmedabad the next largest centre of the industry has nearly two million spindles and 48,000 looms.
possess nearly 60 per cent of the mills, 50 per cent of the total number of spindles and 41.6 per cent looms. It produces 55.7 per cent of the total yarn and 45 per cent of the total quantity of goods.

3. Saturation point seems to have reached for Ahmedabad too, for its progress has slowed down. In the number of mills, Ahmedabad's share was 19.8 per cent in 1919, 19.6 per cent in 1927 and 22 per cent in 1937; in the quantity of goods woven 20.3 per cent in 1919, 19.5 per cent in 1927 and 21.5 per cent in 1937; in the production of yarn 11.9 per cent in 1919, 13.7 per cent in 1927 and 15.6 per cent in 1937. Thus during the whole post-war period the increase in all these respects has been slight indeed and is almost insignificant as compared with the development in the rest of India. So far as the number of mills is concerned, Ahmedabad came to the top in 1937.

PRODUCTION AT THE INDIAN COTTON INDUSTRY -- ITS QUALITY AND QUANTITY.

Although at first spinning side of the industry was more important, yet in course of time, the expansion in the weaving side was out of all proportion to the spinning side. Thus between 1905 and 1936, whereas the number of spindles increased by 91 per cent, the increase in the looms was 299 per cent. Although it is premature to draw conclusions on the basis of a three years' experience yet it seems that since 1936, the noteworthy fact is that this tendency seems to have been checked as is evidenced not only by the ratio of increase in the looms and spindles but also in the production of yarn and woven goods. Between 1936-38, the spindles increased by 1.6 per cent, whereas the increase in the looms was only 0.1 per cent.

The quantity of woven goods increased from 781 million lbs. in 1936-37 to 920 million lbs. in 1938-39 or 18 per cent. But the production of yarn during the
the same period increased from 1,050 million lbs. to 1,303 million lbs. or 24%. This is due to the fact that not only the demand for yarn from the handlooms has increased, but also the export of yarn has increased. In 1936-37 we exported 21 million lbs. of yarn but in 1938-39 the export was 38 million lbs. This increased demand for our yarn comes from China, Straits Settlements and Burma. This recent tendency to greater activity on the spinning side deserves to be watched.

Another noticeable feature in recent years is the spinning of finer counts of yarn. The Indian Tariff Board, 1927, remarked that in India, progress in spinning higher counts was very small. But this charge applies no longer. By the increasing use of imported cotton, by the steady improvement in the quality of Indian cotton and through the adoption of such mechanical aids as better opening, cleaning, high draft system of spinning and the use of combing machines, the progress in spinning finer counts has been accelerated. In 1928-29, the Indian Cotton Mills spun 382 million lbs. of yarn under 20s counts and only 47 million lbs. of yarn above 30s counts. Within a brief period of ten years, in 1936-39, these figures stood at 688 million lbs. and 269 million lbs. respectively. Thus whereas the production of yarn of counts below 20s showed an increase of 92.4% per cent that above 30s registered an increase of 494% per cent.

1. Figures for production have been taken from Monthly Statistics of Cotton Spinning and Weaving in Indian Mills, March 1939, and those for exports from the Review of the Trade of India, 1938-39, p. 239.
Ahmedabad was the first centre to specialise in the spinning of finer counts. In recent years also Ahmedabad has made more progress as compared with Bombay in the spinning of 50s to 60s counts. But Bombay has overtaken Ahmedabad in the aggregate of the counts above 30s. During ten years 1929-30 to 1938-39, the spinning of finer counts above 30s has increased from 12 million lbs. to 72 million lbs. in Bombay or 685 per cent and at Ahmedabad from 17 million lbs. to 73 million lbs. or 329 per cent. Substantial progress has been made by the other centres which in the aggregate increased their production of fine yarn from 18 million lbs. to 114 million lbs. or 533 per cent. Madras, too, has much improved in this respect. The following statement shows the percentage share of the three important centres in the total production of yarn of the different counts in 1938-39.

<table>
<thead>
<tr>
<th>Counts</th>
<th>Bombay</th>
<th>Ahmedabad</th>
<th>Madras</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-20</td>
<td>43</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>21-31</td>
<td>29</td>
<td>25</td>
<td>20</td>
</tr>
<tr>
<td>31-40</td>
<td>15</td>
<td>18</td>
<td>23.8</td>
</tr>
<tr>
<td>above 40</td>
<td>11</td>
<td>17</td>
<td>5</td>
</tr>
</tbody>
</table>

It shows that Bombay spins slightly more of the lower counts, Madras is ahead of the three in counts 31s-40s and Ahmedabad leads in counts above 40s.

When we consider the number of mills engaged in the weaving of fine yarn, we arrive at the same conclusion. In 1926 in Bombay, the number of mills

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2. These calculations are based on the figures given in the Monthly Statistics of Cotton Spinning and Weaving in Indian Mills, March 1938.
spinning below 30s was 17 but in 1933, it came down to 12. On the other hand, the number of mills spinning counts above 30s increased from two in 1932 to 9 in 1933; 25 per cent of the total number of mills were spinning counts between 16 and 19 in 1932 but percentage of such mills in 1933 was only 4.8. In Ahmedabad, the number of mills spinning above 30s was four in 1932 and it rose to 17 in 1933. 1

As for the production of piece goods by the Indian mills, we similarly find a marked improvement so that much finer goods are produced now. In 1926-27, the proportion of piece-goods woven from finer counts i.e. above 30s was ten per cent as against 21 per cent nearly and in 1936-39, it was 37 per cent. 2

It shows that the improvement in this direction has been most marked in very recent years.

The increase in the average yardage per lb. of piece goods, as is shown below, also testifies to the finer quality of the goods made. 3

<table>
<thead>
<tr>
<th>Bombay City</th>
<th>Ahmedabad</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grey bleached</td>
<td>Coloured</td>
</tr>
<tr>
<td>1926-27</td>
<td>4.17</td>
</tr>
<tr>
<td>1938-39</td>
<td>5.0</td>
</tr>
</tbody>
</table>


2. These figures have been arrived at according to the procedure adopted by the Indian Tariff Board, 1932 (vide Report, p. 24). It is based on certain assumptions viz. that all imported yarn is consumed by the handlooms and so it may be left out of account; secondly, 100 lbs. of yarn is equal to 106 lbs. of cloth. We made similar calculations on pp. 34-35 footnote and there we took 100 lbs. yarn for 112 lbs. of cloth. But because we are now taking finer goods, 106 lbs. is more reasonable for this purpose. Piece-goods woven from yarn above 30s counts are generally Shirtings, Camerica and Lawns, Shirtings and long-cloth and Coloured goods. Their total production in 1926-39 was 701 million lbs. according to the figures given on p. 34 of the Monthly Statistics of Cotton Spinning and Weaving in Indian Mills, March 1939. Mill production of yarn above 30s counts was 259 million pounds, deducting 8 per cent for the yarn sold, we are left with 246 million lbs. Converting it into cloth at the rate of 100 lbs. of yarn is equal to 106 lbs. of cloth, we get 261 million lbs. of cloth which is 37% nearly of the total production of such cloth.

We find from this statement that although Bombay has made considerable progress, yet Ahmedabad has maintained its lead.

Not only are finer goods being produced now, but also production of piece-goods shows a wider range and astonishingly greater degree of diversification. The Indian Tariff Board of 1927 severely criticised the nature of production in Bombay. It was pointed out that in spite of greater humidity of climate, Bombay had confined its production to goods of coarser counts and made a smaller portion of Dhuties. This defect has now disappeared and so far as the production of dhuties is concerned, Bombay is now in line with Ahmedabad. Bombay has increased her production of dhuties from 13.2 per cent of the total production in Bombay Presidency in 1926-27 to 21.7 per cent in 1935-36, whereas Ahmedabad decreased heavily during these ten years from 47.7 per cent to 28.3 per cent. But in two respects Bombay has not been able to show the desired progress. It was asked to pay less attention to the production of shirting and long-cloth etc. more to the coloured goods. (vide Report of the Indian Tariff Board, 1927, Vol. I, p. 153). In coloured goods, Bombay went back during ten years 1926-27 to 1935-36 from 85 per cent to 16.9 per cent and it slightly increased her production of shirtings and long-cloth, whereas Ahmedabad increased its production of coloured goods from 25.3 per cent to 32.3 per cent.2 Considering figures for 1936-39, we find that Bombay has slightly improved her position relative to Ahmedabad in the production of Dhuties, for, whereas Dhuties formed 33 per cent of the total production of grey and bleached goods in Bombay, their

percentage in Ahmedabad was 35. But shirtings and
long-cloth were 37% in Bombay, and 25% in Ahmedabad
and coloured goods were 27 per cent in Ahmedabad and 22
per cent in Bombay.

In spite of the heavy cost of the plant required
for printing, which consists of a large number of
copper rollers that have to be re-engraved and renewed,
considerable progress has also been made in the
production of printers which in course of five years
1935-36 to 1937-38, increased by 27 per cent.¹ The
wise policy for old centres like Bombay and Ahmedabad
now is to concentrate on the production of superior
stuffs, specialised types, more bleached, dyed, coloured
and printed goods and avoid producing ordinary lines
in which competition from the up country centres is
daily growing. There are several specialities which
we have yet hardly touched, as for example mechanical
and industrial textiles which have grown in importance
in recent times. Many, these may be mentioned
material for wire insulation in electrical industries,
special cotton tapes for spindle driving, woven belts
for machine driving, special material to cover rollers
for sizing yarn and woven felt used in paper and
pulp industry. Other specialities that need attention
are trawing cloth for drawing offices, horse hair cloth
for lining yoke suits, special woven tapes for curtains
and woven fabrics of all kinds from hose pipes to
sailor coats.

On the whole it may be said that both as regards
quality and quantity of production, the Indian cotton
mill industry has taken rapid strides. The production
of piece-goods reached a new record figure of 4,269
million yards in 1938-39 and the index number of
production was as high as 250 (taking base 1928-29)

¹ Based on Monthly Statistics of Cotton Spinning and
Weaving in Indian Mills.
equal to 100). Improvements have been made in design and style, so that the Indian-made cloth is now almost as attractive as the imported cloth. Dyed and printed voils, white mulls, poplins, tussorees, coloured cloth are now made in India and sold at competitive rates. "The range of goods made by Indian mills does not stand behind that of the largest mills in Europe."  

Sir H. P. Mody quotes from the report of a delegation of experts under Rt. Honourable Tomshew as follows: "The class of goods too were a revelation ... many of the manufacturing processes were fully equal to European standard and in some cases the variety of yarns spun and cloth woven, dyed, and finished, showed range and variety probably not equalled by any individual European concern."  

MARKETING ORGANISATION.

Each centre of the cotton mill industry has its own system of effecting the sales. In Bombay, the mills employ guarantee brokers and the sales are made in the Bombay market, forward sales being common. The Ahmedabad mills employ also a salesmen in each centre who assists the commission agents in pushing the sales. The commission agents for Ahmedabad do not guarantee the solvency of the purchasers. At Ahmedabad, the sales are made through brokers at the mills and not in the market as in Bombay.

Some of the Bombay mills, most of the Ahmedabad ones and almost all the up country mills maintain shops in the up country markets. The shop system has got the advantage that the mill remains in the most intimate contact with the market and sales both retail and wholesale are effected. It is especially profitable in a rising market but it is a little more expensive.

Further the mills cannot, as the commission agents can, finance the purchasers. They must insist on payments on due date. The system, therefore, was not found popular by the Bombay mills and after trying it for about ten years, they reverted to commission agency system in 1927. The Ahmedabad mills, however, found it quite satisfactory. Keen competition from the up-country mills has again compelled the Bombay mills to attempt to establish closer touch with the market. The representatives of the mills now pay visits to the consuming centres to make a thorough study of the market; trade correspondents have also been appointed in the principal markets; and the individual mills have opened their own selling agencies and retail shops.

But in all these respects, Ahmedabad other centres are following a more 'outward' policy. The managing agents of Ahmedabad and the up-country mills, are in a better position to respect the wishes of their customers in matters like acceptance of small orders, the manufacture of certain styles in small quantities, packing of different varieties in a single and stamping the stamp, name, and maiden of the vendee.

Now that we are able to supply about 92 per cent of the home market, it is time to look to the developing of foreign markets. On account of the Japanese difficulties in connection with the Sino-Japanese conflict, we were able to capture some of our old markets e.g. Straits Settlements, Arabia, Iraq, Kenya Colony, Ceylon and Burma. The exports of cotton piece-goods increased from 141.7 million yards in 1935-36 to 241.3 million yards in 1937-38 or almost double. But how uncertain is our hold on foreign markets.

is shown by the fact that in the very next year i.e. 1938-39, there was a set-back and the exports declined to 177 million yards or 27 per cent. This was partly due to the raising of the Egyptian tariff where the exports shrank from 23 million yards in 1937-38 to 3 million yards in 1938-39 and partly due to the revival of the Japanese competition.

The fact is that we have got no rationalised collective marketing organisation. Each individual mill has to manage for itself. This can only result in cut-throat competition at home and presenting a feeble front to our rivals abroad. Until some effective common sales organisation is evolved, the industry will not emerge from its precarious position.

**EQUIPMENT IN THE COTTON MILLS IN INDIA.**

Most of the Indian Cotton Mills have both spinning and weaving equipment. The number of pure spinning mills has steadily been decreasing. The pure spinning mills came down from 58 in 1931 to 44 in 1936. Spinning however continues to be a speciality of Madras where 19 out of 34 or 56 per cent. of the mills do spinning only, whereas the number of such mills in Bombay was only 4 out of 66. The proportion of looms to spindles was 1,928 in 1900 and 1,145 in 1938 which shows much greater installation of looms than spindles.

Another noticeable thing is that the mills have got now much larger equipment. The average number of spindles and looms has risen from 25,825 and 208 respectively in 1900 to 26,359 and 527 respectively in 1938.

The most noteworthy feature in recent times has been the efforts made at modernising the plants. Most of the old big mills have replaced their out-of-date machinery in several departments by an up-to-date machinery. A fairly large number of mills are now
equipped with up-to-date types of machinery and humidification plants. Bombay mills have spent nearly Rupees fifty lakhs in air conditioning and as a result, 3 per cent increase in the efficiency of the workers has been noted. High draft spinning and high speed warping have been introduced and the speed of the looms and the spindles has been increased generally. It was believed that the high speed would result in the larger number of breakages but the laboratory tests have shown that there is no such fear provided the counts of yarn spun are well within the capacity of the cotton used. The ring frames which have been recently set up bear a larger number of spindles and the introduction of these frames has enabled the mills to eliminate roving partially and thereby reduce the number of operatives in the speed frame department by about 50 per cent. But the buildings of many old mills at Ahmedabad are uneconomical in lay-out, for frames bearing larger number of spindles say 400 per frame cannot be accommodated there. A fairly large number of mills have adopted the high draft Casablanca or the four-roller system. Combers have been introduced by many mills in the carding department and quite a large number of mills have also introduced vacuum strippers in cards. Several mills have installed up-to-date plants like the Simplex System in ring spinning. Most of the progressive mills have also added equipment for bleaching and dyeing. But it is obviously uneconomical for small concerns to have their own bleaching and dyeing plants. A separate factory specialising in such finishing processes would be much

1. Indian Textile Journal, March 15, 1940, p. 179.
2. Technological Bulletin Series A No. 7 of the Technological Laboratory at Mawunga.
better. Much progress is not noticeable in the introduction of automatic looms on account of heavy initial cost, rapid depreciation, more expensive accessories and above all due to the inability of Indian operative to attend to more than four looms, while the American operative can attend to 20 or 24 looms. Printing plant, which was rare about ten years ago is now fairly common in big modern mills. Ahmedabad mills were already much advanced in these respects and progress, therefore has been most marked in Bombay. Although much has been done in recent times in the matter of modernizing of plants by the cotton mills, yet it cannot be said that the Indian mills are now perfectly modern. On the other hand in the majority of the mills, there is much room for improvement. Mr. Harold Hill, Technical Expert, Howard and Bullough Ltd., who recently visited the Indian Mills, is of the opinion that comparatively large amount of plant is in urgent need of replacement.\(^1\) In Japan any mill which is more than 10 years old is considered to be out-of-date and according to Japanese figures a modern mill works 35% more economically.\(^2\) But majority of our mills are more than 10 years old and even the Indian modernized mills cannot be considered modern. So long as our plant continues to be obsolete, we must be seriously handicapped in competing with our rivals.

**RATIONALISATION.**

The term rationalisation in the cotton mill industry in India is used in a peculiar sense. It does not mean, as it does in Germany, the adoption of comprehensive schemes of amalgamation, elimination of waste and competition, concentration of production

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in the best equipped mills on wholesale scrapping of the old and obsolete machinery. A scheme of this type was put up in 1930 by some resident officers according to which 32 mills under seven managing agency firms were to co-operate with the object of standardisation of products, re-organisation of qualities so that single types of yarn or cloth may be allotted to the individual mills, concentration of purchase and sale by single units, and discarding of the old machinery. But, unfortunately this scheme did not materialise.

Rationalisation in the Indian cotton mills has only meant partial modernisation of plant, improving working conditions in the mills by the installation of humidification plants and reduction in the proportion of labour for a given amount of mechanical equipment e.g. relatively less number of operatives looking after a certain number of looms and the spinning frames. Kashmiri handloom cloth about Rs. 40,00,000 on air-conditioning plants and in country major improvements have been made at least in 20 mills spending Rs. 20,000 to Rs. 66,000 increasing efficiency by 4 to 8% with fewer breakages and more even conditions for yarn and cloth. The so-called rationalisation schemes have been extensively adopted in recent times.

Rationalisation in the sense of one man handling more machines is found mostly in the weaving department only and it has not made much headway in the weaving department. In the loom rationalisation has so far mainly taken the form of making certain changes in the plant. The following statement gives in the details of the rationalisation of efficiency schemes introduced in

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the Bombay Mills.

<table>
<thead>
<tr>
<th>Efficiency system</th>
<th>Feeder per man</th>
<th>Ero per man</th>
<th>French per man</th>
<th>S per weaver</th>
<th>Pinning eider per man</th>
<th>Per weaver</th>
<th>Per weaver</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15</td>
<td>18</td>
<td>19</td>
<td>15</td>
<td>32</td>
<td>39</td>
<td>42</td>
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<td>36</td>
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<td>26</td>
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<td>9</td>
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<td>13</td>
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<td>4</td>
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</tbody>
</table>

SIGN OF THE TIMES AND THE MUNICIPALITY.

Several factors determine the size of the industrial unit, for example, commercial ability, the amount of capital available, the degree of technical improvements, the extent of the market, the nature of production and the extent to which economies, internal and external, can be realized, if the scale of production is enlarged. If a firm of weaving-mills has a large number of mills under its control, the units can be smaller, for various economies will still be available to each unit. Raw cotton and stores which constitute nearly 50 per cent of the total costs, cost will remain the same, whatever the size, and no economy can be expected by enlarging the size. Under one system, this advantage is utilized according to the capital value of the mill and will also make no difference, but it is in power charges, supervision and office expenses and rates, rents and taxes that a larger unit will be more economical.

If these power is the most important factor, in case it is obtained from a hydro-electric mill, the larger load will mean a smaller cost per unit, but when it is generated in the mill itself, maximum economy is attained when a mill has between 600 and 700 looms with

1. I am indebted for these details to Mr. Mulheen, the Secretary of the Bombay Willowers’ Association who was good enough to show me a note dated 18.3.38 that he had prepared in this connection.
a total spindle of 20,000 to 25,000. When production is to be more diversified and particular care is taken to satisfy local or sectional tastes, a smaller or a more moderate size is more economical.

The average size of a cotton mill has steadily increased. The average number of spindles per mill was 25,625 in 1900, 25,982 in 1928 and 26,369 in 1938. The average number of looms per mill was 208 in 1900, 497 in 1928 and 527 in 1938; the average number of hands employed daily was 835 in 1900, 1,077 in 1928 and 1,152 in 1938. The cotton mills in 1937 belonging to the various centres can be classified as follows:

**Classification according to the number of spindles.**

<table>
<thead>
<tr>
<th>Spindlage</th>
<th>Bombay City</th>
<th>Ahmedabad</th>
<th>Other mills in Bombay Presidency</th>
<th>Outside Bombay Presidency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 10,000</td>
<td>..</td>
<td>..</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>10,000 and under 20,000</td>
<td>6</td>
<td>25</td>
<td>23</td>
<td>49</td>
</tr>
<tr>
<td>20,000 and under 30,000</td>
<td>9</td>
<td>28</td>
<td>12</td>
<td>31</td>
</tr>
<tr>
<td>30,000 or more.</td>
<td>49</td>
<td>20</td>
<td>10</td>
<td>38</td>
</tr>
<tr>
<td>Above 50,000.</td>
<td>19</td>
<td>4</td>
<td>2</td>
<td>12</td>
</tr>
</tbody>
</table>

This table shows that Bombay mills are bigger than Ahmedabad mills or other mills in the Bombay Presidency. There are nineteen mills having more than fifty thousand spindles in Bombay, whereas the number of such mills is only four in Ahmedabad, 2 in the rest of the Bombay Presidency and 12 in the rest of the country. The average number of spindles per mill in Bombay is 45,148 and at Ahmedabad 26,351.

**Classification according to looms.**

<table>
<thead>
<tr>
<th>Looms</th>
<th>Bombay City</th>
<th>Ahmedabad</th>
<th>Other parts of the Bombay Presidency</th>
<th>Rest of India.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 600</td>
<td>7</td>
<td>43</td>
<td>34</td>
<td>76</td>
</tr>
<tr>
<td>600 and under 1,000</td>
<td>27</td>
<td>30</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>1,000 and under 2,000</td>
<td>24</td>
<td>6</td>
<td>5</td>
<td>15</td>
</tr>
<tr>
<td>Above 2,000</td>
<td>4</td>
<td>..</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>
Here also we find that Bombay mills are the biggest. The largest number of Bombay mills falls in the group 600 to 1,000 looms but in Ahmedabad and elsewhere in the group of less than 600 looms. Only seven mills in Bombay have less than 600 looms, whereas in Ahmedabad, the number of such mills is 43 and in the rest of India 76. Bombay mills on an average possess 1,076 looms and Ahmedabad 618.

But the most important question to consider is how far the units in the industry are economical. As pointed out by the Millowners' representatives before the Tariff Board of 1927 the minimum size in Bombay should be a mill with 30,000 spindles and 1,000 looms and that for Ahmedabad 25,000 spindles and 600 looms. When we come to apply this test, we find that the position is not quite satisfactory. Fifteen mills in Bombay or 22 per cent nearly and 44 in Ahmedabad or 53% are uneconomical from the point of view of spindlage and 34 mills in Bombay or 50% nearly and 43 in Ahmedabad or 53% from the point of view of looms. This is a position which is frankly unsound.

LABOUR IN THE COTTON TEXTILE INDUSTRY.

Labour constitutes about 25 per cent of the total cost of production. The importance of economy and efficiency in this connection is, therefore, very great.

Indian labour is generally regarded as comparatively speaking inefficient. An operative looks after 240 spindles in Japan, 540 to 600 in England and 1,120 in U.S.A. but only 180 in India. A weaver in India attends to two looms, in Japan on an average to 2½, in United Kingdom 4 to 6 and 9 in U.S.A. But while we may not subscribe to these pseudo-mathematical representations

2. Ibid., p. 396.
of relative efficiency we cannot deny that the Indian labour is less efficient.

Much of this inefficiency, however, is due to causes beyond the workers' control e.g., tropical climate, bad machinery, defective control, poor management, social and religious causes; contributing to his migratory character and above all low standard of living due to poverty. In many mills his efficiency is hampered by a tendency to spin counts higher than the quality of cotton justified and also by speeding up of production regardless of the mixers. It is agreed that there is no inherent inferiority in the Indian worker and under favourable circumstances he attains to a high level of efficiency.

Ahmedabad labour is considered to be more efficient than that of Bombay. The advantage of Ahmedabad over Bombay has been calculated at 10.7 per cent in spinning and 6.1 per cent in weaving. Labour in the up-country centres is cheaper though less efficient. But it has been noticed that as time passes, it tends to overtake Bombay labour in efficiency while retaining its cheapness.

Recruitment of labour has always been a problem, especially for Bombay where not more than 25 per cent can be classified as permanent and 50 per cent absent themselves from work for various periods during the year. Ahmedabad and Bhagalpur are more happily placed in this respect. The Ahmedabad labour is almost permanent and is drawn from the hereditary weaver caste. Labour is no longer recruited through jobbers in Bombay and at Ahmedabad jobbers never had anything to do with recruitment. They only supervised work. In the matter of recruitment, leave, wage payment and discipline,

labor is now placed under the departmental hands in Bombay. But as labor is more or less fluctuating, it is difficult to establish a permanent and living contract with labor. The salesmen therefore still continue to wield an influence which cannot be regarded as inconsiderable. The introduction of jobbers' record system has minimised the corrupt practices of the jobbers and the Mill Control system has considerably de-annualised labor. The degree of absenteeism has also come down. It can be eliminated almost entirely if a definite proportion of casual and labor is worked out on the basis of character and regularity employed. In this way, the casual labor will be reduced to a minimum.

Most of the cotton mills in India seem to be fully alive to the necessity of employee labor welfare. In recent years, the labor has become conscious and has begun to demand greater attention from the owners. In many mills, the welfare officers have been specially active in providing them facilities, comforts, and conveniences. The work done by the Bombay Mills, Birla, Buckingham and Carnatic mills, Delhi Cloth Mills, Sausar group of mills Bombay, Advance and Calico Mills, Trichinopoly and the New Textile mills, Lyallpur, is commendable. Welfare centers have been established in Bombay and Chandigarh where educational and recreational work is done, providing among other things, canteens, clubs, and women's and nursery schools. In the new mills, there is more of spacious and the artificial cooling system recently introduced lessens the rigors of the factory work. The Report on the Administration of the Factories Act for 1939 in Bombay Province says that 24 departments of mills were equipped with air-conditioning plants and movement for health exhibitions, first-aid training classes, creches, cooperative credit societies, and medical aid has been extended.
Bombay and most in Ahmedabad have got well equipped dispensaries attended by qualified doctors where medicines are given free of charge. The work of the Textile Labour Association Ahmedabad deserves special mention. According to their report for 1936-37, 703 patients were admitted during the year to their indoor hospital and 43,173 were day-patients. Their expenses on educational work were Rs. 41,000 nearly to which the Ahmedabad millionaires contributed Rs. 15,000. The Association runs 25 schools with 1,667 students.

There is very little of educational facilities in Bombay. The Victoria Jubilee Technical Institute trains men for higher jobs and a small technical School exists in Alep. More trade schools should be established. Technical books and pamphlets written in the language that the workers can understand should be prepared and distributed.

As for housing, the position is far from satisfactory. The quarters provided by the mills housed 20 per cent in Bombay, 13 per cent in Ahmedabad and 12 per cent in Sholapur. Although the millionaires' Association Ahmedabad has gone well ahead in their scheme of building 1,500 tenements, the Ahmedabad Municipality has also built 150 quarters, yet the accommodation is far from adequate. Insufficient accommodation, dark and stuffy interior of the tenements and their squalid surrounding are responsible, a great deal, for the inefficiency of the workers.

Single room tenement seems to be the rule and most of them are not fit for human habitation. They are said to be cold in winter, hot in summer and wet in rains.

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1. Report of the Indian Tariff Board on Cotton Industry, 1932, p. 71. The chawls built by the Development Department Bombay seem to be increasing in popularity and 192 out of 207 chawls have been occupied. (See Indian Information, May 15, 1940, p. 346.)
The Ahmedabad Labour Union in a 'Plea for Municipal Housing' point out the standard of working class houses obtaining in the advanced countries where they have three to four rooms with a kitchen and a bath. Elsewhere the State has contributed to the housing of the working classes and unless the state takes a bold step here, the conditions will continue to be unsatisfactory.

Trade Union Movement is yet very feeble in this country. Migratory character of our labour, their illiteracy, dislike of discipline, unwillingness to subscribe to the union funds, lack of suitable leaders, difference of castes and creeds are some of the factors responsible for this. Forgetting that a strong labour organisation is a sure guarantee of industrial peace, our employers have been consistently hostile to the labour movement. Even in Ahmedabad, where labour is pretty strongly organised victimisation is fairly frequent. The Textile Labour Association Ahmedabad State, in their annual report for 1936-37, that during the ten previous years, they had to pay Rs. 45,000 in the shape of victimisation benefit.

The Cotton Textile Industry has been particularly unlucky for having a large crop of industrial disputes in recent years. The coming in of the popular ministries in 1937 seemed to be a signal for fresh outbreaks and now the advent of war has further added to these troubles. From a note prepared by the Bombay Millowners' Association Office, it appears that between 1928 and 1937, there were 259 strikes in Bombay involving seven and a half lakhs of people with a loss of 35,636,000 working days, translated into wages equal to Rs. 465 lakhs. Each operative lost Rupees three per month spread over these ten years. Ahmedabad has not been so unlucky on account of the application of judicial methods for the
settling of disputes there. A new law passed in Bombay in 1936 is expected to minimise these troubles and give the industry a much-needed respite. According to it strikes and lock-outs are illegal until the whole of the machinery provided for negotiation and discussion has been made use of. Conciliation will start to function immediately a dispute is likely to occur.

COTTON MILL FINANCE.

In a country where capital is notoriously shy and nervous and where hoarding in one form or another is all but universal, it is idle to expect that an industrial company will be able to raise sufficient funds, through the sale of shares and debentures, to meet its normal requirements of fixed, floating and working capital. The proportion that share capital bears to the total working capital and fixed capital is 38 per cent for Bombay, 25 per cent at Ahmedabad and 13 per cent at Sholapur. Leaving aside working capital, the paid-up capital does not cover even the block account. Fifty mills out of sixty-five had their capital less than the block, a prominent example being that of the Central Spinning and Weaving Manufacturing Company with a capital of Rs. 86,87,500 but block Rs. 1,13,20,167. A combined balance sheet of 61 mills submitted to the Tariff board in 1936 showed that in 1934 the managing agents in Bombay had to find Rs. 10 crores and in Ahmedabad Rs. 300 lakhs for the balance of fixed capital expenditure and for working capital.

This state of affairs makes the financial administration of the mills precarious and throws them

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at the mercy of the managing agents and other financial houses. In other countries, there is an extensive use of trade bills of sixty or 90 days' sight to cover the supply of cotton and stores but in India a comparatively small use is made of these bills. Therefore an Indian mill must provide ready cash for this purpose. If the financial position of the mill is sound, short-term loans renewable after three months can be obtained from the banks on cash credit system or otherwise on the guarantee of two signatures; in the absence of this double guarantee, stocks have to be hypothecated --- a method not popular with the mills for fear of losing credit and prestige. That is why full use is not made sometimes even of the meagre banking facilities are available.

Every centre of the industry has evolved its own system of arranging for finance. Borrowings are higher in Bombay than in the other centres due to the better banking facilities available there. Both in Bombay and Ahmedabad a mill is started with a small capital but whereas in Bombay the capital is gradually increased, in Ahmedabad it continues to stand at the original figure, for a greater proportion of the block account there is financed out of deposits and other unsecured liabilities than at other centres. Sholapur depends on banks and other sources more than on the managing agents for secured accommodation. The following is the analysis of funds secured by the textile industry in Bombay, Ahmedabad and Sholapur.

(Figures in Thousands of Rupees).

<table>
<thead>
<tr>
<th></th>
<th>Bombay</th>
<th>Ahmedabad</th>
<th>Sholapur</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Mortgage Debentures</td>
<td>17,017</td>
<td>.........</td>
<td>4,427</td>
</tr>
<tr>
<td>(b) Secured Loans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. From Banks</td>
<td>11,876</td>
<td>5,789</td>
<td>2,540</td>
</tr>
<tr>
<td>2. From Managing agents</td>
<td>6,701</td>
<td>.........</td>
<td>900</td>
</tr>
<tr>
<td>3. Others</td>
<td>665</td>
<td>112</td>
<td>3,020</td>
</tr>
<tr>
<td>(c) Unsecured Loans</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Managing agents</td>
<td>67,917</td>
<td>32,917</td>
<td>1,220</td>
</tr>
<tr>
<td>2. Deposites</td>
<td>12,756</td>
<td>52,842</td>
<td>1,462</td>
</tr>
<tr>
<td>3. Others</td>
<td>2,236</td>
<td>12,231</td>
<td>104</td>
</tr>
<tr>
<td><strong>Total a,b,c.</strong></td>
<td>1,25,168</td>
<td>1,33,901</td>
<td>13,673</td>
</tr>
</tbody>
</table>

1. Prepared from a table in the Report of the Bombay
It will be seen that mortgage advances supply 13.8 per cent of the total requirements at Bombay and 32 per cent in Calcutta. In making Cheilapur depends to the extent of 15 per cent, Bombay 6 per cent and Ahmedabad 5 per cent. The funds supplied by the managing agents constitute 6 per cent in Bombay, 31 per cent in Ahmedabad and 13 per cent in Cholapur.

According to the Ahmedabad Millowners' Association report for 1936 (vide p. 135), the managing agents also hold 25 to 50 per cent of the shares and their share in the deposits is nearly 20 per cent.

This practice of Ahmedabad of relying on short-term deposits for financing schemes of capital expenditure is on principle unsound, although it seems to have stood the test for nearly half a century fairly well. These deposits are a fair-weather friend and likely to desert on the slightest shock of adversity. The chairman of the Ahmedabad Millowners' Association drew pointed attention in the annual general meeting held in 1936, to the desirability of decreasing their dependence on such deposits. The deposits, however, have enabled the mills to declare higher dividends, for the amount of paid-up capital has been kept at a small figure and the deposits carry less rate of interest than the dividend declared. The high rates of dividend declared at Ahmedabad have served a very useful purpose, for they made the shares attractive at a place where capital was very shy.

There are one or two points relating to the financial administration of the Indian cotton mills that deserve notice. The Tariff Board of 1927 found that the mills at Bombay were over-capitalised. The paid-up capital of mills, excluding those having a small variation, between 1918 and 1923 increased 196 per cent but the number of spindles increased only by 36.8 per cent and that
by 36.8 per cent and that of looms by 61.2 per cent.
Nearly 30 out of 83 mills in Bombay showed over-
investment. (Vide Report of the Indian Tariff Board,
1927, Vol. I, pp. 72-73) But during the subsequent
ten years, schemes of capital reduction and reconstruc-
tion were undertaken by several mills.¹ How far this
over-capitalisation has been rectified in Bombay is
further showed by the fact that between 1935 and 1937,
whereas, the number of mills decreased by 16 per cent,
the paid-up capital decreased by 35 per cent, spindles
decreased only 16 per cent and looms 7.6 per cent. If
we compare the position of Bombay and Ahmedabad in 1937,
we find that Bombay has less spindles and looms in
proportion to its paid-up capital. The ratio between
paid-up capital, spindles and looms at Ahmedabad and
Bombay roughly comes to 2:6, 2:2 and 5:7 respectively.
But Ahmedabad mills are well-known for their under-
capitalisation and therefore Bombay mills cannot now
be considered to be suffering from any serious over-
capitalisation.

Although the practice of investing funds in the
allied concerns is not common, yet it is not rare too.
This is certainly not intrinsically sound; but it is the result of
the weakness of the ally end this liability to the share-
holders. The system also tends to perpetuate insolvent
and unsound concerns and is therefore responsible for
weak spots in the industry. Further, it is likely to
mislead the public as to the working of the concern,
for it may be running at a loss and yet be able to
declarre dividend out of its earnings from investment.
Equally undesirable is the practice prevailing at
Ahmedabad of keeping surplus funds with the shroffs who
not unofen are identical with the managing agents.

¹. Report of the Indian Tariff Board on Cotton Industry,
1932, p. 74.
Another defect that may be mentioned, is the lack of consistent policy, especially in Bombay, regarding depreciation allowances. Depreciation is not regarded as a charge on production but a charge on profits and it is not therefore allowed from year to year when profit and loss account is prepared.

This has put many a mill in a difficulty. A mill in 1920 charged Rs. 62,000 to depreciation out of a profit of Rs. 15.38 lakhs but in 1923, it had to allow Rs. 1.38 lakhs for depreciation out of Rs. 1.85 lakhs of profits.\(^1\) Ahmedabad mills have been more regular in this and the practice has improved in Bombay, too, in recent times. But full depreciation allowance is still not made. The maximum amount of provision for depreciation in Bombay in any year during ten years 1927-36, was Rs. 69 lakhs on a block of Rs. 44.43 lakhs in the year 1927. It gives an over-all proportion of 1.5 per cent in a year when dividends disbursed amounted to Rs. 61.28 lakhs and commission and allowances Rs. 30.35 lakhs. For Ahmedabad the highest allowance, namely, Rs. 57 lakhs on a gross block of Rs. 1,961 lakhs, works out at a little under 3 per cent in 1934, while for Belapur the maximum percentage of allowance works at 2.6 per cent in 1926-27.\(^2\) The right proportion for depreciation on the other hand should be, on average, 4½ per cent. Not making a full allowance for depreciation is taking a short view and sowing seeds of difficulties for the future.

**Organisation.**

The organisation of the Indian Cotton Mill Industry is strictly on an individualistic basis, each mill working in an isolated fashion making all

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arrangements regarding purchase of cotton, machinery and mill stores, selling its output and effecting insurance as best as it can with the limited resources at its disposal.

The work of the existing Millowners' Associations of which the most vocal are the Bombay Millowners' Association and Ahmedabad Millowners' Association is mainly of a political character. They have been formed primarily to safeguard the interests of the employers against labor and to represent their views to the Government in the matter of any legislation affecting them. Besides, they have tried to introduce uniformity of standards in the conditions of work, to regulate engagement and dismissal of labour, leave procedure, payment of wages and deductions of fines from the wages, and to eradicate bribery and corruption. The Associations also serve as a meeting ground of the manufacturers for the discussion of matters of common concern. The Labour and Textile Advisory (Managers) Sub-Committee of the Bombay Millowners' Association has been doing quite a useful work. Samples of competing foreign fabrics are now collected. They collect and disseminate any information which is likely to be useful to the mills. The Bombay Association now maintains a weekly record of prices of imported goods, while the market correspondents send regular information regarding the state of trade.

All this work is quite useful but it is not enough. The Associations simply draw attention to the necessity of, but they do not bring about any, concerted or concerted action. Their attitude is "Do it if you please" and not "please do it." One reason why they are incapable of any coercive action is that the Associations are not all-inclusive. Of 83 mills in
Ahmedabad at the end of 1936, only 33 mills were members of the Association. Further, it appears that some of the most prominent and progressive mills were out of it. In other words, position of the Millowners' Association is not much unlike the now almost defunct League of Nations. The membership of the Association is dictated by convenience and the non-member suffers no particular hardship.

In Japan, on the other hand, the progress of the industry is due to the immense driving force and direction of its organisation. The Cotton Spinners' Association there has an absolute control with the result that the highest efficiency at the productive side is matched with the closest contact with demand in all parts of the world so that one is related to the other in a manner most suited to Japan. Not only is the equipment of the mills most modern but with the aid of a staff of first class economists, Japan is setting the pace in matters of high commerce.

If we are successfully to meet or raised competition from abroad, we must drastically overhaul our organisation. At any rate we must immediately create continuously functioning sub-committees on matters like export trade, mill finance, labour, purchase of cotton and purchase of machinery and mill stores. Constant touch must be maintained with our trade commissioners in foreign countries so that full use is made of their services. I一流 of a particular line which becomes popular should not be permitted. This is unfortunately the practice of many mills now. Each mill should be assigned a definite number and other mills must be forbidden to use it. Above all, we must revive schemes of real rationalisation the like of which was shelved in 1930.
CONCLUSION.

Consolidation resulted from expansion, manufacture of finer goods, diversification and increase of output, extensive use of foreign cotton, modernization of plant and setting up of new mills in proximity to materials and markets and attempts to capture foreign markets are some of the features of the cotton industry in recent times. In spite of the diminishing dominance of cotton, the industry still continues to be highly centralized. There is a growing realization that changes in the methods of finance and drastic reorganization of the industry from strictly individualistic to a collective basis are essential to keep abreast of the times. In England the future of the Lancashire industry has already been re-planned on collectivist lines. The plan prepared by the Joint Committee of Cotton Textile Manufacturers in 1928 for its own rehabilitation was accepted by 93% of the industry and in July 1929 the Octavian Board set up under the Cotton Milling Industry Act of 1926 got its powers extended so that the work of purchasing and dismantling redundant and obsolete cotton spinning mills and machinery may proceed apace. In India also, given a favourable fiscal policy, a progressive attitude on the part of manufacturers and a determined collective effort to push forward, peaceful and cordial relations between masters and men, and patriotism on the part of the people to patronise Swadeshi, the industry can face the future with confidence.

The present war is not likely to mean the same measure of prosperity to the cotton industry as the last war, for the conditions are now different. At that time imports were far greater than the home production which now meets nearly 92% of our demand. But all the same the industry is bound to receive some fillip from the war. The total value of war supply orders for piece-goods, cotton
yarn, tape and webbing placed throughout India between September 3, 1939, and July 13, 1940, was Rs. 5,22,82,000, and of the total demands worth Rs. 17,58,00,000 for textile supplies from the beginning of the war up to the end of September, 1940, supplies were made to the value of Rs. 11,42,00,000. The new fabric viz., cotton-jute fabric is also attracting the attention of the war supply department, and over 3,00,000 yards of this fabric have already been supplied to the United Kingdom. On the whole it may be expected that the cotton industry will emerge out of the present war stronger and healthier. The Meek-Gregory Mission that went to America to explore further avenues for Indian goods and the trade commissioners appointed recently will no doubt fetch some business to our cotton mills also.

3. Ibid., p. 413.
CHAPTER IV

THE INDIAN SUGAR INDUSTRY.

MARVELLOUS DEVELOPMENT.

It is generally believed that India is the original home of sugar. But the modern Indian sugar industry developed only recently and its development, particularly under the shelter of the protective tariff, is one of the most glorious and romantic chapters in the history of the Indian industrial development. For two years, after the granting of protection the number of sugar factories kept almost doubling itself. Few other industries can show such a record of rapid development.

The following statement shows the progress of the industry since it got protection:

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of factories producing sugar direct from cane</th>
<th>Cane Crushed (Tons)</th>
<th>Sugar Produced (Tons)</th>
<th>Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931-32</td>
<td>32</td>
<td>1,783,000</td>
<td>158,581</td>
<td>8.85</td>
</tr>
<tr>
<td>*1939-40</td>
<td>145</td>
<td>13,131,700</td>
<td>1,241,700</td>
<td>9.4%</td>
</tr>
</tbody>
</table>

We thus find that in less than a decade, the number of factories has increased 353 per cent, quantity of cane crushed 636.5 per cent and the quantity of sugar produced 683 per cent. This is marvellous indeed.

1. The number of factories was 32 in 1931-32, 57 in 1932-33 and 112 in 1933-34.

* Vide Note by the Director, Imperial Institute of Sugar Technology on the Production of Sugar directly from Cane in Modern Factories in India during 1939-40 Season, Indian Trade Journal, October 3, 1940, pp. 6-13.
Today the Indian sugar industry is the second largest industry in the country and the largest in the world. Nearly rupees thirty crores of capital is invested in this industry. It has attracted an annual drain of rupees fifteen crores from India and provides employment to 150,000 workers, paying them Rs. 3,00,00,000 as wages.¹

AGRICULTURAL ASPECT OF SUGAR INDUSTRY.

The success and the competitive strength of the sugar industry more than that of any other, depends upon a regular and cheap supply of the raw material, for the cost of sugarcane represents on an average about 53 per cent of the total cost of making sugar.²

AN ANOMALY AND AN INITIAL HINDRANCE.

Sugarcane of the best quality is cultivated in the tropics, 'the lands of the burning sun and the beating rain.' But it is a constant source of mystification to many that 91.85 per cent of our total sugarcane acreage should be found in the sub-topical areas - a tract which is really a wheat tract. The quality of our cane therefore must be inferior and the yield per acre lower as compared with countries like Java, Formosa and Hawaii. The sucrose content of Indian sugarcane is 11.5 to 12.5, purity of juice 81.5 to 82.5 and fibre content 15 to 16; the sucrose content is 1.5 to 1 point and the purity of juice 6 to 5 points lower than in Natal, Mauritius, Java and Hawaii, while the fibre content is equal to Natal and 2 to 3 points higher than elsewhere. ³ With this quality of cane we cannot hope

¹ See Presidential address by C. Kirpal Singh in the Annual General Meeting of the Indian Sugar Mills Association, 1937.
² Report of the Indian Tariff Board on Sugar Industry, 1938, p. 31. During the two years 1935-37 it varied from 46.6 per cent to 76.1 per cent. (Ibid., p. 69).
³ Ibid., p. 20.
⁴ Maxwell - an article in Capital's Jubilee Number (1938), p. 75.
to emulate the results achieved in Java. Our sugar industry therefore starts with an initial handicap.

No appreciable progress has been made in increasing the yield per acre. Substitution of improved varieties for the indigenous ones has increased the yield per acre to some extent.\(^1\) It increased from 12.3 tons in 1930-31 to 15.6 tons in 1936-37,\(^2\) but came down to 13.3 tons in 1938-39 due to bad season.\(^3\) Almost a revolution in our agricultural operations is necessary to bring us into line with Java where the yield per acre is 54.9 tons per acre.\(^4\) That such a revolution is not altogether beyond the field of possibility is shown by the fact that a factory in Bombay Presidency has succeeded in growing 110 tons of cane per acre and that in a competition held in that Presidency, some plots recorded a yield of 63.3 tons and 104.22 tons per acre.\(^5\)

The change in acreage under cane in recent years shows a strange phenomenon, viz., a period of over-expansion followed by one of shortage.\(^6\) The area under sugarcane increased in 1936-37 by 10.3 per cent, it decreased in

1. Area under improved varieties was 82.32 per cent in 1936-39. (Vide Review of Sugar Industry 1938-39, Supplement to the Indian Trade Journal May 30, 1940, p. 17).
5. These facts were mentioned in the meeting of the Indian Sugar Committee held in 1937.
6. Area under Sugarcane-

<table>
<thead>
<tr>
<th>Year</th>
<th>Acreage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1935-36</td>
<td>4,154,000</td>
</tr>
<tr>
<td>1936-37</td>
<td>4,582,000</td>
</tr>
<tr>
<td>1937-38</td>
<td>3,897,000</td>
</tr>
<tr>
<td>1938-39</td>
<td>3,248,000</td>
</tr>
<tr>
<td>1939-40</td>
<td>3,618,000</td>
</tr>
</tbody>
</table>

1937-38 and 1938-39 by 12.7 per cent and 18.6 per cent respectively and it is estimated again to increase by 11.3 per cent in 1939-40. It seems to be involved in a vicious circle, which must have serious consequences both for the grower and the manufacturer. Moreover, our sugar industry does not really need such a large acreage, if the production of sugar is to be confined to meet internal requirements only. In 1938-39 the sugar factories used only 16.2 per cent of the total cane produced in the country. 1 It is therefore necessary that the area sown with sugarcane should be properly regulated. That is wanted is not an increase in area, but an increase in the yield per acre. Planning of cane cultivation is also essential in view of the necessity of regulating production of sugar to avoid over-production.

It is not merely enough that cane in sufficient quantity should be produced in the country. But it is even more important that good quality cane of reasonable freshness should be made available to the factories at a cheap price. In Western India where the factories grow their own cane and in Southern India where there is yet no over-crowding of the factories, there is no complaint on the score of cane supply. But in many cases outside U.P. and Bihar, there are complaints of insufficiency. Even in U.P. and Bihar there is serious mal-distribution, for in 1937-38 there was plenty of cane standing in Moradabad, whereas many factories closed for want of cane in Meerut. The mal-distribution of cane is shown by the fact that whereas 33 factories having super-abundance of cane were crushing cane beyond

1. Production of Sugarcane for 1938-39 has been calculated as 43,100,000 tons. (Vide Review of Sugar Industry 1938-39 Supplement to the Indian Trade Journal, May 30, 1940 p. 16). The quantity of cane crushed in the factories was 7,004,800 tons. (Vide Second Memorandum on the Production of Sugar in the Indian Trade Journal, May 16, 1940, p. 405).
their capacity in the season 1937-38, there were 89 factories which did not get sufficient cane to be able to work to their full capacity. Of these 7 factories worked to the extent of 20 per cent to 50 per cent of their capacity, 26 factories 50 per cent to 75 per cent and 56 factories more than 75 per cent but less than what they could. 1

The passing of the Sugar Factories Control Acts in U.P. and Bihar in 1936 seeks to rectify the situation arising out of the unequal distribution of cane. These acts establish the zoning system and reserve and assign areas for each factory. This system may break the vicious circle of overproduction of cane in one season followed by underproduction in the next. It will also make the factories interested in the areas reserved exclusively for them and the quality of cane will improve. It is hoped that these Acts will establish conditions in India somewhat approximating to the plantation mills. Even the plantation mills are not self-sufficient in the supply of cane as may be supposed. On an average, the plantation mills have to purchase about 5 per cent of the total cane crushing. 2

Last cane should deteriorate, it should be brought to the mill for crushing within 24 hours and with care as the means of transportation 16 miles' radius is considered a reasonable area of supply while longer distance is permissible for rail-borne cane. As sugarcane cultivation is sufficiently concentrated in U.P., Bihar and the Punjab, it may be concluded that the majority of the factories in India are in a position to secure fresh supplies of cane. In their memorandum

1. Calculated from the Consolidated statement of the working results of the mills during the season 1937-38, compiled by the Indian Sugar Mills Association
to the Indian Tariff Board 1938, the Indian Sugar Mills Association pointed out that the longest distance that the cane had to travel was 25 miles, the average being 6 to 8 miles and the longest interval between cutting and delivery was 3 days. It is clear therefore that some factories are not so placed as to secure fresh cane supply. Delay is also caused on account of congestion of carts at the factory gates, which can be avoided by the adoption of a system of delivery passes so that the cane grower may know on which day he has to bring the cane. This will also be in the interest of the factory, for the daily supplies to the factory will be properly regulated.

It has been reported that decomposition from cane storage can be almost completely prevented even during a period of 5 to 6 weeks by windrowning. This piece of research, if confirmed, will be of immense benefit to the factories which get irregular supplies of cane.

It is of the utmost importance to the factories that the price of cane should be low. The price of cane delivered to the factories in India has ranged between 4 to 5 annas per maund, though it fell to 3 annas in 1936-37. But this price is so high that at this level, we can never hope to compete with Java where at its highest the price is about one anna per maund. The minimum price of cane is now officially fixed in U.P. and Bihar in accordance with a sliding scale, which varies the price of cane with the price of sugar in the previous fortnight. But this results in a vicious circle, for a fall in the price of sugar leads to a fall in the price of cane and this in turn leads to a fall in the price of sugar. The right method is to fix

1. Abnormally high sugar prices prevailing recently resulted in the high minimum price being fixed for cane varying from Re. 0.8/9 per maund to Re. 0.10/9 per maund. (Vide Indian Trade Journal, March 14, 1940, p. 724).
the price of cane on the basis of the cost of cultivation and it should be kept at that figure throughout the crushing season.

The fixing of minimum price is also objectionable from another point of view. It offers no inducement to the grower to improve the quality of his cane. Therefore a premium, over and above the fixed minimum, should be offered on better cane. So long as the price of cane is linked with the price of sugar, there is also the need for adjustment in the price paid for cane on account of fluctuations in the sugar prices after the crushing season. Some system of deferred payments should be instituted to make this adjustment.

Although the success of the sugar industry almost entirely hinges upon the improvement on the agricultural side, yet we have made little progress in this respect so far. The yield per acre no doubt has slightly increased on account of the introduction of improved varieties of cane. But the quality has not much improved. On the other hand the Tariff Board of 1938 remarked that in some provinces the quality had gone down. So the question is not merely varietal but cultural. The standard of cultivation must be improved and adequate irrigation facilities provided. Besides ensuring a heavier yield per acre, which alone can enable a grower to sell cane cheap, it is also necessary to find early-ripening and late-ripening varieties, so that the crushing season may be prolonged. Much research work is also necessary to ensure that the cane is disease free. In 1937, during five months' season the loss due to borers was estimated at Rs. 17,50,000. The U.P. and Bihar Governments have

1. The Imperial Council of Agricultural Research: Miscellaneous Bulletin No. 26 "The Progress of Agricultural Science in India during the last 25 years" by W. Burns, 1939, p. 18.
launched comprehensive development schemes. The Imperial Council of Agricultural Research, the Imperial Institute of Sugar Technology and the Coimbatore Cane-breeding station are also doing their little bit to help the sugar industry. But our expenditure on research is extremely small. It is six annas per acre as compared with Re. 3 per acre in Java. It is well to remember that in Java they make sugar in the fields.

THE MANUFACTURING ASPECT OF THE SUGAR INDUSTRY.

GUR MAKING.

Overwhelmed by the spectacular growth of the sugar mill industry, one is apt to forget that the sugar industry in its indigenous form (i.e. gur making) still occupies a dominant position. As much as 69.5 per cent of the sugarcane produced in the country is utilised in the making of gur.¹ The average per capita consumption of gur in India was estimated by the Tariff Board, 1938 at 25.8 lbs. and was as high as 72.4 lbs. in the U.P., whereas the per capita consumption of sugar was only 6.7 lbs.² As against 1,083,000 tons of sugar consumed in India in 1938-39, the consumption of gur was 2,705,923 tons.³ In other words we require more than two tons of gur for every

² Ibid., 1938, p. 55.
³ For Sugar consumption, Wide Review of the Sugar Industry of India for the year ending October 31, 1939, Supplement to the Indian Trade Journal, May 30, 1940, p. 23. For production of gur the same publication p. 25.

Production of gur for consumption in India:

<table>
<thead>
<tr>
<th>Period</th>
<th>Production (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1929-30</td>
<td>1,842,000</td>
</tr>
<tr>
<td>1936-37</td>
<td>4,268,000</td>
</tr>
<tr>
<td>1937-38</td>
<td>3,864,000</td>
</tr>
<tr>
<td>1938-39</td>
<td>2,728,000</td>
</tr>
</tbody>
</table>

The decrease in 1938-39 was due to the scarcity of cane and the diversion of cane to the factories on account of very high minimum price offered. In 1938-39, 22,077 tons of gur were exported. Hence the consumption of gur in India was 2,705,923 tons.
ton of sugar that we use.

But the production of gur is extremely wasteful on account of feeble extraction, careless and inefficient boiling and inversion from sucrose to glucose which means a loss of crystallisable sugar. The gur-maker extracts only 50 per cent juice from cane by a bullock mill, whereas a modern factory can extract nearly 90 per cent. All this means a great national loss. To mitigate this loss double purpose factories may be established where the juice of the first crushing may be used in making gur and that of the later crushings for making sugar.

Strenuous efforts should also be made to make all the necessary and possible improvements in the cane crushing machinery, furnace, and the design and the shape of the pans. Greater attention should be paid to the clarification and removal of impurities, so that gur hygienically produced, more palatable and presentable, can be placed in the market.

Both gur and sugar have independent markets and one cannot easily replace the other. There is no wonder that the quantity of gur produced has increased side by side with the increase in the sugar manufactured. The Indian masses have a prejudice against white sugar, and a liking for gur. It is not merely a question of faith, but it has also been proved by scientific analysis that the nutritive value of gur is 30 per cent higher than that of sugar. The Tariff Board of 1933 also testifies to the higher nutritive value of gur. Mahatma Gandhi and the Village Industries Association are doing a great deal to

1. The U.P. Government is spending Rs. 5 lakhs on improvement of gur for insuring durability and efficiency of extraction.
popularise the use of gur. But it is not likely that sugar will be ousted from its present uses. It will only mean that those who are using sugar may also begin to consume a little of gur and those who are already using gur may use a little more of it, so that market for both will expand simultaneously.

MAKING OF WHITE SUGAR.

White sugar is made in three ways: (1) By the indigenous method known as khandasari; (2) By refining gur; and (3) direct from cane in a modern factory.

(1) Khandasari:

The United Provinces is the home of Khandasari sugar and contributes about 60 per cent. Although the quality of Khandasari sugar conforms to the second grade factory sugar, yet it often fetches a higher price.

The Khandasari production involves a wasteful use of cane for the recovery is only 5.25 per cent. Consequently production of this type is on the decline.

The Indian Sugar Committee estimated it at 250,000 tons in 1920; the estimate of the Tariff Board, 1931 was 260,000 tons, while the estimate for 1936-37 by the last Tariff Board was 100,000 tons which is also the official estimate for the year 1933-39.1

But it is not to be supposed that the Khandasari industry will die out altogether. Some prejudice against white sugar is likely to linger and this will keep it up. The overhead charges of the Khandasari are low and cost of supervision is negligible. Also, they have to pay lower excise duty. Further, the Khandasari is bound to survive in the remote and isolated parts of the country where on account of lack of communication and small and scattered holdings, sugar factories cannot be set up. It will thus continue to enjoy a fitful

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existence. Its future depends upon the price of sugar. The cost of manufacture of sugar per maund by the Khandasri method has been estimated at Rs. 5/11/-.

If the price of sugar therefore rules higher, the Khandasri production becomes profitable. The Sugar Excise Act is so worded that the Khandasris can and do evade the excise duty altogether by so adjusting their business as to escape the excise duty. In 1937-38, only the Khandasri production shot up from 100,000 tons to 123,000 tons.

In view of the fact that the sugar factories can use but a small proportion of sugarcane produced in the country, the Khandasris occupy a very important position, at any rate in the transitional stage, in our agricultural system, for they furnish a valuable outlet for our surplus cane. Efforts are, therefore, being rightly made by the Sugar Committee of the Imperial Council of Agricultural Research and the U.P. Government to devise better apparatus and to make other improvements in the Khandasri methods. The power-driven centrifugals are coming more into use now and this has been facilitated by the development of Hydro-electric power.

(2) Refineries:

Making sugar by refining gur is another wasteful branch of the sugar industry. Not more than $5\frac{1}{2}$ maunds of sugar can be obtained from 100 maunds of cane in this process against more than 9 maunds that are obtained by a modern factory. This method of making sugar also is, therefore, deservedly declining. Between 1932-33 and 1938-39, the number of refineries has decreased from 27 to 10 and the sugar produced by them...

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from 78,000 tons to 15,800 tons. 1 The sugar made by this process has decreased by 81.5 per cent, whereas sugar made direct from cane has increased 124.3 per cent. The factors which tend to keep up this process are the low price of gur, the high price of sugar and the absence of early-and-late-ripening varieties of cane which compels the factories to use gur as raw material in the off-season. Its disappearance is only a question of time.

(3) Production of sugar direct from cane.

Production of sugar direct from cane is the most important branch of the sugar industry. The quantity of sugar produced in 1939-40 by this process was 1,241,700 tons 2 which is definitely too in excess of our requirements of sugar. 3

But so far as the quality is concerned there is much room for improvement. The quality of sugar is judged by grain, colour, lustre and the keeping quality. As the Indian Sugar Mills Association stated before the last Tariff Board, the best quality Indian sugar is as good as the best imported foreign sugar. But the average is smaller in grain, not so pure in colour and lacks in uniformity of crystal size. The Indian sugar is also susceptible to damage in storage and in transit. According to the review of the quality of sugar by

1. Review of the Sugar Industry of India for the year ending October 31, 1939, Supplement to the Indian Trade Journal, May 30, 1940 p. 1B. The production in 1939-40 was 31,700 tons (Vide Indian Trade Journal, September 19, 1940, p. 726).

2. See Note on the Production of Sugar directly from cane in modern factories in India in 1939-40 season by the Director, Imperial Institute of Sugar Technology, published in the Indian Trade Journal, October 3, 1940, pp. 6-13.

3. Consumption of sugar in 1938-39 according to Official Review was estimated at 1,083,000 tons. On account of the high prices of sugar prevailing at the present time, the home demand for sugar may be put at 1,000,000 tons or even less.
Mr. R. C. Srivastava for the season 1939-40, the big and the medium grained sugar lacked brilliance and contained twins, joint and mixed crystals. There is, however, a slight improvement in these respects over the previous years. 24.58% of the total samples received in 1939-40 had their colour equal to or better than I.S.S. No. 28 as compared with 7.33% last year. There is also a tendency to produce sugar of smaller grains. The fact is that most of the factories are not yet well equipped in the boiling and curing departments for the production of uniformly large crystals without reducing crushing capacity to an uneconomic limit.

As for working efficiency, considerable improvement has been made. When the Indian Sugar Committee reported in 1920, the percentage recovery was 6.85, in 1931-32 it was 8.89 and for 1939-40 it was 9.45 per cent, the highest recovery (for Bombay) being 10.97 per cent. But the recovery in Java is 12.04 per cent. So we have yet much lee-way to make up.

The milling efficiency depends upon the quality of cane and the process employed in the manufacture. As the Indian cane is thinner and has a large proportion of rind, it offers greater resistance in crushing. Its higher fibre content also means more wear and tear to the milling plant and entails the use of greater motive power. Improvement in the quality of cane therefore is a condition precedent for increase in efficiency.

The two processes generally employed in making sugar are the carbonation process and the sulphitation process. The former involves greater initial outlay and higher operative costs. But the recovery is 2 per cent higher and the sugar produced is of much better

quality. This process is therefore to be preferred and it is considered especially more economical where juice is poor and more refractory to treatment as is the case in India. But 106 factories given in the list for 1937-38 used the sulphitation process which is considered by experts as less economical. The limiting factor is the availability of lime-stone and coke at a reasonable cost. More sympathetic railway policy can go a long way in removing this difficulty and facilitate the change over to the better process. It is estimated that a 500-ton factory would require one lakh of rupees for effecting this change. ¹

Absence of cane preparatory devices, which are necessary, for most of our cane is fallen and occupies unnecessarily more space on the cane carrier, and crushing beyond capacity are responsible for low extraction of juice. The efficiency of the boiling house is lowered by the defective size, design and lay-out of the plant. The average boiling house recovery in India is 85 to 87 where-as in Java it is 90.99. ²

Another reason for higher costs of sugar made in our country is the shorter duration of the crushing season. In the season 1938-39, 52 factories out of 145, worked for less than four months and 119 factories worked from 60 to 149 days. ³ The maximum number of working days for factories in U.P. was 126 as against 203 in 1936-37, in Bihar 110 as against 175 and in all-India the maximum in 1938-39 was 184 as against 203 in 1936-37. The average duration of the crushing season

2. Francis Maxeck—An article in Capital Jubilee Number, 1938, p. 77.
was 83 in 1938-39 as against 138 in 1936-37. Thus we have made no advance in this respect so far. To prolong the crushing season up to at least six months for all factories is our most urgent need. Finding out early- and late-ripening varieties, controlling insect diseases, safeguards against frost and providing adequate and regular irrigation facilities are some of the steps that can be taken to achieve this purpose.

An experiment has been made for the manufacture of brown sugar in the Cawnpore Sugar Technological Institute and, if the reaction of the market is favourable, it may revolutionise the manufacture of sugar in the country. The sugar content of this brown sugar being 85-80 per cent, it is not liable to excise duty. It has been calculated that after paying three and a half annas per mauld for cane to the cane growers and a profit of four annas per mauld of sugar to the factory owners, the brown sugar can be sold ex-factory at Rs. 2/5/- per mauld. This sugar has the same flavour and nourishing property as gur, but its keeping quality is likely to be far superior, for its moisture content is less than half that of gur. In a country like India where the masses have a strong prejudice against white sugar, the brown sugar is likely to become popular. The manufacture of this sugar will not require any additional machinery beyond what even ordinary factories possess; nor will any change be necessary in the process ordinarily followed for making white sugar. The factories will therefore be

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The duration of the crushing season, 1939-40 was as follows:

<table>
<thead>
<tr>
<th>Province</th>
<th>Number of Days of Actual Working of Factories</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.P. Bihar</td>
<td>175</td>
</tr>
<tr>
<td>All other provinces</td>
<td>166</td>
</tr>
<tr>
<td>All-India</td>
<td>203</td>
</tr>
<tr>
<td>Minimum</td>
<td>72</td>
</tr>
<tr>
<td>Maximum</td>
<td>104</td>
</tr>
<tr>
<td>Mean</td>
<td>133</td>
</tr>
</tbody>
</table>

(See Indian Trade Journal, October 3, 1940, p. 3).
able to produce white and brown sugar simultaneously. The manufacture of this new sugar will enable the factories to lower their cost of production, provide more employment for labour and skilled staff and above all, it will help in the solution of the vexed problem of surplus cane, for in the eastern districts of U.P. alone, surplus cane is estimated at 40,000,000 maunds.

THE INDUSTRIAL UNIT IN THE INDIAN SUGAR INDUSTRY.

The manufacturing efficiency also depends upon the scale of operations. Among the factors that determine the proper size of the unit in sugar industry may be mentioned the quantity of cane available, the economic incidence of over-head charges and transport facilities both in regard to the raw material and finished product. It is therefore not possible to dogmatise. Even a small factory of say 50 or 60 tons daily cane-crushing capacity can be profitably run if it enjoys a monopoly in a particular locality.

The Indian Tariff Board 1933 adopted 500-ton capacity as a minimum economic unit. On this basis, 56 factories out of 157 in 1938-39 must be pronounced as uneconomic. The position has, however, considerably improved since the last Tariff Board reported. They found that the majority of the factories were below 500-ton capacity, but the number of such factories was nearly one-third in 1938-39.

Modern Sugar factories and refineries existing in India in 1938-39 can be classified according to capacity as under:

<table>
<thead>
<tr>
<th>Capacity</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below 250 tons</td>
<td>31</td>
</tr>
<tr>
<td>250 and under 500 tons</td>
<td>26</td>
</tr>
<tr>
<td>500 and under 750 tons</td>
<td>31</td>
</tr>
<tr>
<td>750 and under 1,000 tons</td>
<td>31</td>
</tr>
<tr>
<td>1,000 tons and over</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
</tr>
</tbody>
</table>

EQUIPMENT IN THE INDIAN SUGAR MILLS.

Efficiency also depends upon the equipment of the factory. Most of our factories erected hurriedly in the early period of protection are defective in lay-out plans, design and quality of the machinery and also the building. They are inadequate in capacity and too much cramped to allow extensions. Patching and adding here and there made the plants unbalanced. Mechanical unloaders which have become an established fact in the up-to-date milling practice are conspicuous by their absence here. It is necessary that improvements should be effected in the balance and arrangement of the machinery and better chemical control instituted. It is only protection that is keeping these old models alive. But protection is not going to last for ever. The mills set up in recent years are, however, quite modern and well-equipped and exhibit a high degree of efficiency.

LOCATION OF THE SUGAR MILLS.

The governing factor for the location of the sugar factories is the proximity to the raw material which is so bulky that transport costs over a distance are prohibitive. Fuel and power exert but a small influence, for in an up-to-date factory very little fuel is needed, over and above its own bagasse. Naturally therefore the industry is highly concentrated in U.P. and Bihar which together claim 64 per cent of the total sugarcane acreage in the country; 81 per cent of the total quantity of sugar is produced in U.P. and Bihar.

2. Review of the Sugar Industry of India for the year ending 31, October 1939, Supplement to the Indian Trade Journal, May 30, 1940, p. 15. The share of U.P. and Bihar in the production of sugar in India in 1939-40 season is 71% nearly (Vide The Indian Trade Journal, October 3, 1940, pp. 10-11).
The location of the sugar mills in India is defective from several points of view. Climatically it is defective, for in other countries, they are situated in the tropics where the conditions for cane cultivation are most favourable, whereas the bulk of our mills are situated in the sub-tropical belt. Even here the location is unsatisfactory from the point of view of the availability of raw material, for on account of too much congestion of the factories in certain areas, there is superfluity of cane in some places and shortage in the others. From the point of view of market relations, too, the location is far from satisfactory. For example in Bombay, consumption is the highest (230,000 tons) but production is very low (61,000 tons), whereas in Bihar production is 231,000 tons but consumption is only 58,000 tons; similarly in Madras which can grow very good quality cane, consumption is 100,000 tons but production is only 34,000 tons. This involves costly haulage to places which are more suitable for the establishment of sugar factories. If the industry had been developed on a planned basis, it would not have been necessary for the other provinces to depend so much on U.P. and Bihar alone for their supplies of sugar.

It is necessary that the future development of the industry should be more rationally guided. The system of licensing of the factories which has already been introduced in U.P. and Bihar should be extended to the whole of the country, if the mistakes of early period of development have to be avoided in future. Besides the suitability of Western and Southern India for further development, possibilities in N.W.F.P. may also be noted. Peshawar grows cane of good manufacturing quality.

quality at low cost and being away from the sea ports by about 1,000 miles, it enjoys a considerable measure of protection; facilities for water transport are also exceptionally favourable and the cantonments offer an extensive market. Also, beet can be successfully cultivated there and the beet root and sugarcane together can extend the crushing season to two hundred days nearly.

The following statement shows the geographical distribution of the factories and the relative importance of the different provinces.¹

Season 1939-40.

<table>
<thead>
<tr>
<th>Number of Factories</th>
<th>Cane Crushed (Tons)</th>
<th>Sugar made (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.P. ... ...</td>
<td>70</td>
<td>7,034,100</td>
</tr>
<tr>
<td>Bihar ... ...</td>
<td>32</td>
<td>3,466,100</td>
</tr>
<tr>
<td>Punjab and Sind. ..</td>
<td>9</td>
<td>175,100</td>
</tr>
<tr>
<td>Madras ... ...</td>
<td>10</td>
<td>343,300</td>
</tr>
<tr>
<td>Bombay ... ...</td>
<td>8</td>
<td>631,600</td>
</tr>
<tr>
<td>Bengal and Assam  ..</td>
<td>9</td>
<td>430,000</td>
</tr>
<tr>
<td>Orissa ... ...</td>
<td>2</td>
<td>27,400</td>
</tr>
<tr>
<td>Indian States. ...</td>
<td>11</td>
<td>1,024,100</td>
</tr>
<tr>
<td><strong>Total.</strong></td>
<td><strong>145</strong></td>
<td><strong>13,131,700</strong></td>
</tr>
</tbody>
</table>

**COMMERCIAL ASPECT OF THE INDIAN SUGAR INDUSTRY.**

**THE NEW PHASE.**

Production of sugar having exceeded consumption in India, the sugar industry has entered into a new phase. Not long ago, we largely depended on imports for sugar but within less than a decade, the position has been completely changed and the imports are now negligible². The centre of interest has therefore now shifted from the ports to places like Cawnpore in the interior and the movement of sugar traffic has been reversed. This has created new problems. The questions

¹ Vide *The Indian Trade Journal*, October 3, 1940, pp. 10-11.

² (Continued on the next page cont. wn.)
relating to adequate and proper ware-housing facilities and the keeping quality of sugar have now become of first class importance. Considering that sugar would deteriorate in storage, all the mills are anxious to clear their stocks as early as possible which results in the shortage of railway wagons available.

Then there is the question of the railway rates. So long as the industry remains highly centralised in U.P. and Bihar, necessitating long haulage, a sympathetic and scientifically fixed scale of rates, showing a larger concession over longer distances is necessary, if distant markets are to be retained by the home manufacturers.

Absence of standards of quality is another difficulty in the efficient marketing of sugar. Mr. Srivastava, in his review of the quality of sugar for 1939-40 season has pointed out that there are wide variations in the quality of sugar bearing the same designation. Bewildering multiplicity of grades renders forward business impossible. A Sugar Standard Bureau was established in 1936 and definite standards were worked out. But very few mills do their business on the basis of these standards. It is necessary to realise that standards well-known and recognised by the manufacturers, dealers and consumers are essential for any successful

(Continued from the previous page foot note)

Imports of sugar by sea into British India amounted to 30,715 tons valued at Rs. 40,82 lakhs in 1938-39 as compared with 369,500 tons valued at Rs. 412 lakhs in 1932-33. (Vide Review of Sugar, Supplement to the Indian Trade Journal, May 30, 1940, pp. 21-22). The imports in 1937-38 were only 13,715 tons. But in the year 1938-39 the imports increased on account of high prices prevalent in that year. Import of Sugar is now banned on account of war restrictions.

1. Only three factories have designated their sugars in terms of Indian Sugar Standards. (See the Review of quality of Indian Sugar for 1939-40, Indian Trade Journal, July 4, 1940, p. 8.)
scheme of marketing.

In recent times, the sugar industry has had to pass through many a critical phase. The market became nervous in 1936 owing to a large increase in supply and the downward trend of the prices. This provided an occasion for the birth of the Sugar Syndicate - a common selling organization which by fixing the quotas of production and regulating the releasing of the stocks restored health and steadiness to the market. But another difficulty appeared from an unexpected quarter. Owing to cheaper cane and evasion of excise duty, the Khandsarics increased their production and it became profitable to mix it with white sugar and pass the mixture on as the latter. Apart from being dishonest this practice upset the market, for it became difficult to adjust the supply of factory sugar to the demand for it.

The system of control broke at the other end during 1938-39. On account of shortage of sugar supplies due to short production and meagre stocks, the price of sugar began moving up. The advent of war accentuated the rise further. The market became excited and hectic speculation ensued. The Syndicate was powerless to stop the upward swing. From Rs. 7/9/3 in March 1938, the price of Haridwar Crystal reached Rs. 10/5/- at the end of the year. In August 1939 it was Rs. 10/7/- and in September as a reaction to war it rose to Rs. 10/13/7. On May 24, 1940 it was quoted at Rs. 12/6/- This rise in the price of sugar is certainly abnormal. The Tariff Board, 1938, considered Rs. 7/11/10 as the fair selling price. Such a rise is also undesirable for it is bound to reduce consumption and seriously hamper efforts to clear stocks.

It should not be supposed, however, that the home market for sugar has reached its farthest limit. Our
per capita consumption of 7.2 lbs. is insignificant as compared with 105.6 lbs. in Australia, 105.4 lbs. in Great Britain, 85.1 lbs. in Cuba and 94.8 lbs. in U.S.A. Even if our standard of living rises only slightly, the consumption of sugar is bound to increase considerably. With a huge population aggregating to 400 millions, an increase of .5 lbs. in per capita consumption will provide a scope for further production of nearly 100,000 tons. The setting up of a publicity board on the lines of the Indian Tea Market Expansion Board can go a long way in increasing the consumption of sugar and creating scope for further expansion of the industry ultimately if not immediately.

THE PROBLEM OF THE BY-PRODUCTS.

One of the most pressing problems that faces the sugar industry in India is the problem of the by-products. The lowering of the cost of sugar to a competitive level depends very largely upon finding a remunerative outlet for the by-products of sugar.

Bagasse, one of the principal by-products, is at present used as fuel. But it can be put to a more economical use, viz., for paper and board making. It has been estimated that 1/4 or 1 1/2 ton of bagasse can be utilised in making a ton of paper board and the cost of a 3,000-ton board-making factory is estimated at Rs. 6 to 7 lakhs. In Louisiana, bagasse is already being used for this purpose. The experiments conducted in the Forest Research Institute Dehra Dun, have demonstrated that it is possible to manufacture boards from bagasse. But unless cheap fuel is found to

replace bagasse, it will not be possible to spare it for this purpose. In Bengal and Bihar factories, coal can more easily be substituted for bagasse as fuel, if necessary mechanical alterations are made in the plant. We imported in 1938-39, Rs. 45 lakhs worth paste board and card board.¹ It is worthwhile to explore the possibility of setting up this new subsidiary industry in India. Other uses of bagasse are the making of purified cellulose and artificial silk. Experiments in the Benares University have shown the possibility of using bagasse ash for the manufacture of glass.

But the more insistent problem relates to the use of molasses. During 1939-40 season of molasses produced were 16,900 tons (estimated), from gur refineries and 485,300 tons³ from the cane factories. The ever-accumulating quantities of molasses are becoming a nuisance to the factories and a danger to public health. Molasses can be used as fertilizers, as cattle feed, for reclamation of alkaline soils, for road-surfacing and for the manufacture of power alcohol. An easy biological process for the conversion of a fairly large quantity of molasses into clean, dry and inodorous manure has been discovered, the application of which gives definitely increased cane-yield. It will require a small plant and the cost will be twelve annas per man.³

² See Second Memorandum on the Production of Sugar refined from Gur in India during 1940, by the Director, Imperial Institute of Sugar Technology, published in the Indian Trade Journal, September 19, 1940, pp. 726-728.
³ Vide Note on the Production of Sugar directly from cane in modern factories in India during the season 1939-40, by the Director, Imperial Institute of Sugar Technology published in the Indian Trade Journal, October 3, 1940, pp. 10-11.
⁴ Dr. H. D. Sen, Biochemist, Imperial Institute of Sugar Technology — an article in the Indian Journal of Agricultural Science, April 1940, p. 172.
Molasses can also be separated into potash and sugar syrup and the two sold separately. Further, molasses can be used in the making of yeast, vinegar and in canning and pickling.

But all these uses are more or less in an experimental stage and their commercial possibilities have not yet been clearly established. One profitable use, however, to which molasses are being put in various sugar producing countries and even here in the Indian State of Mysore, is the production of power alcohol. The Joint Power Alcohol Committee appointed recently by the U.P. and the Bihar Governments has come to the conclusion that power alcohol can be manufactured from molasses at a reasonable cost in India and the mixture of power alcohol and petrol can be suitably used as motor spirit. They have recommended legislation for the establishment of the power alcohol industry under Government control and for the compulsory admixture of power alcohol with petrol for use as motor spirit. The U.P. Government has accepted the recommendations and the necessary legislation has been passed. We imported in 1938-39, 74 million gallons of motor spirit which was sold in India at Rs. 1/2/- each and 965,000 gallons of other spirits worth Rs. 1,22,63,000. There is no reason why we should not manufacture power alcohol here and retain much of this wealth in the country. It will prove of incalculable benefit to the country during the war. A perennial supply of cheap and excellent raw material is waiting to be used for this new industry and it is hoped that the wastage of this valuable material will be soon put an end to.

**ORGANISATION.**

The sugar industry is much better organised. The Indian Sugar Mills Association commands a respectable membership (114 out of 164 in 1937-38), while the
membership of Indian Sugar Syndicate is compulsory for all the mills in U.P. and Bihar. Among other organisations that serve to promote the interests of the industry are the Sugar Committee of the Imperial Council of Agricultural Research and the Imperial Institute of Sugar Technology.

But with all this the fact remains that the industry is still organised on strictly individualistic basis. Unified control which is essential for a complete rationalisation is lacking and there is no compelling force which would scrap obsolete plants and arrange all the processes in a manner calculated to eliminate all kinds of waste of labour, capital and material. The most fundamental defect in the structure of our sugar industry is the divorce between the agricultural and the manufacturing sides, whereas the integration of the two is the normal feature in other countries.

With the resources at our command, we can aspire to be one of the biggest exporters of sugar in the world but the present structure will have to be fundamentally altered and the industry properly planned. The State - control will have to be wider in scope if the interests of the individual capitalists have to be reconciled with those of the nation at large. By virtue of the Sugar Control Acts, the State has already begun interfering in the industry in a manner which would have shocked the followers of the Laissez-faire doctrine. The setting up of the Sugar Commission is another big step in this direction. This policy should be pursued to its logical conclusion. The least that should be done is to make the membership of the Association and the Syndicate compulsory for all the mills in India and to institute licensing of the factories for the whole of India. This will facilitate
control and rationalisation of the industry. In U.S.A., a very comprehensive measure was passed in 1934 completely to rationalise the sugar industry. We should also move with the times.

CONCLUSION.

Rapid, rather over-rapid, development of the sugar industry in India has left in its trail problems which need urgent solution. We are particularly deficient on the agricultural side of the industry. Looking at the level of efficiency in Java, we find that we are still far behind.¹ But if the same energy and earnestness that has been manifested hitherto continues, there is no doubt that with the cooperation of the scientist, the State and the capitalist, the position of the industry will be stabilised. The era of expansion is now over and we should now look to the proper consolidation of the industry.

The Sugar Industry in India is at present passing through an exceptionally critical stage. The industry is staggering under a huge load of surplus stocks with no prospect of alleviation either from the home market or from the foreign. A further cause of confusion was the withdrawal in June, 1940 of the recognition from the Sugar Syndicate, a body whose function it was to regulate the sales of sugar. The Syndicate is considered by many as only a branch of the Sugar Mills Association and a feeling has existed that it served the interests of a group of manufacturers and did not pursue a policy which was even in the true interests of the industry.² The

¹. Landing price of Java Sugar at Calcutta was estimated by the last Indian Tariff Board at Rs. 2/10/6, while the cost of production in India was put at Rs. 6/13/1. Vide Indian Tariff Board Report on Sugar Industry, 1938, p. 84 and 81 respectively.
². See statement issued by Mr. Birla while resigning from the chairmanship of the Board of the Indian Sugar Syndicate (Tribune dated July, 26, 1940, p. 9).
Government could not therefore be expected to give a statutory support to such an organisation and divest itself of its responsibility to the consumer and the cane grower. But the weakening of the Syndicate could only lead to a scramble and a cut-throat competition in the market. In August, therefore, the Governments of the United Provinces and Bihar restored the statutory recognition to the Syndicate subject to the conditions, inter alia, that the Executive Officer of the Syndicate would be nominated by the Government and a Sugar Commission would be set up which, subject to government control, would be the final authority in all matters connected with the production and sale of sugar as well as matters regarding cane prices etc. Accordingly the United Provinces Sugar Factories Control (Amendment) Act, 1940, has been passed which provides for the appointment of a Sugar Commissioner and the establishment of a Sugar Commission. It further provides for the control of production and sales of sugar and for the realisation of the subsidy given to the industry by means of an advance from the Government of India through the imposition of a special case of six pies per maund of cane for a period of three years. It also empowers the Provincial Government to fix the price of sugar, or vary the minimum price of sugar in certain cases and relax the conditions of the Act in certain special circumstances in order to facilitate the production of sugar for purposes of export.

No doubt the recognition of the Syndicate and the setting up of the Sugar Commission will restrain the forces of anarchy in the industry. Yet the chief problem of heavy uncleared stocks and threatened accumulation of stocks in the future still remains. The season 1938-39 was one of short production and a
large quantity of sugar was actually imported. But the sugar production of 1939-40 season is the highest ever attained. It exceeds the previous record of 1936-37 by 13% and production of 1937-38 and 1938-39 by 33% and 91% respectively.

The difficulty due to over-production is aggravated by the high price at which the production has been obtained. As suggested by the committee appointed by the United Provinces and Bihar Governments after the crushing season 1938-39, a new sliding scale was adopted adjusting the price of cane to the current price of sugar. When the price of sugar went up on account of war, the price of cane was also raised. This, together with the remission of cess on the purchase of cane by factories, diverted the cane to the factories and more cane was crushed.¹

On account of this over-production, the carry-over at the end of the season is expected to be nearly 300,000 tons as against a normal carry-over of 150,000 tons. A large area sown in 1940-41 is expected to leave a similar surplus next year so that a carry-over of 600,000 to 700,000 tons may be anticipated in 1941. Left to itself therefore the condition of the industry is bound to go from bad to worse.

To remedy this situation a bold policy is called for. It appears from a joint communiqué issued on October 19, 1940 by the Governments of the United Provinces and Bihar that it has been decided to fix

1. The average quantity of cane crushed per working day being 710 tons as against 630 tons in 1938-39. Vide note on the production of sugar directly from cane in modern factories in India during the season 1939-40 by the Director, Imperial Institute of Sugar Technology, Indian Trade Journal, October 3, 1940, p.6.
the price of cane at 4 as. 6 ps. per maund, to reduce
the cane cess from 6 ps. to 3 ps. per maund, and to
reduce the rate of cooperative societies' commission.
It has also been announced that production for 1941-42
shall be substantially less than 720,000 tons which is
the quota fixed for 1940-41. In August, it had already
been announced that the United Provinces and Bihar
Governments would immediately assume the responsibility
for payment to the Government of India of Rupee one
of the excise duty per maund on sugar manufactured
last season and remaining unsold which would later be
recovered from the industry.

This is a welcome assistance. But it will not
be sufficient to pull the industry out of the
difficulty. It will be necessary to remit Rupee one
per maund of the excise duty altogether and to abandon
the cess on cane as well as the cooperative societies'
commission. Even this may not be enough. The
difficulty that faces the industry is far more
fundamental. The fundamental fact of the situation is
that we now produce more sugar than we can consume.
To curtail production is no real remedy. It will only
mean a loss to the cane growers. Home demand must
be stimulated through propaganda and by lowering the
price of sugar. But this will take time and can
afford no immediate relief in the present difficulty.
The imports of sugar have been banned under war-time
regulations. This ban would have been of great
advantage if home consumption had been more than
production. But now its only benefit is that it has
prevented further deterioration of the situation,
for the high prices ruling in the country would have
been an open invitation to Java sugar.

The real remedy now is the export of sugar to
the extent of 200,000 tons immediately and a further
200,000 tons in 1941. The International Sugar Agreement under which we are forbidden to export sugar imposes a severe handicap on our industry in the present conditions and must therefore be repudiated. It has already been reduced to a dead letter by the war-time restrictions and difficulties. Further, the Government should subsidize the export of sugar and should make some money out of the proceeds of the excise duty and cane cess available for this purpose. The railways may also be asked to grant special rebate in freight on the export of sugar. Only a sympathetic attitude and a bold action for the next two years can save this great industry from being ruined.
CHAPTER V.

INDIAN PAPER INDUSTRY.

In a country like India where the written word is a mystery to millions of people, the paper industry cannot attract the same attention as some other industries do. But the paper industry in modern times has come to occupy, to some extent, the position of a 'key' industry. Paper is not only used for writing and printing. But its use in arts and industries is increasing daily e.g. it is used for the manufacture of paper insulating materials, paper rags, paper food containers, paper washers for the cotton industry, paper ammunition holders etc. The development of the chemical industry also depends largely on the paper industry. In our scheme of industrialisation for this country, therefore, the paper industry should occupy an honoured place.

Paper is made both by hand and machine and we shall study both of these aspects of the industry.

THE HAND-MADE PAPER: ITS EARLY HISTORY AND LATER DEVELOPMENTS.

Indians have been conversant for centuries with the art of making paper by hand. The oldest paper manuscript found in India dates from the first quarter of the thirteenth century.¹ Kashmir was famous for its paper since Akbar’s time and Sialkot in the Punjab made a fine quality of paper called Jehangiri. In 1855 there were in Sialkot 53 factories employing over 900 men and yielding an income of about Rs. 60,000.² In Ahmedabad, too, paper making was a prosperous trade and in 1848, 800 men and boys were daily employed.

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in paper works. 1 Ahmedabad paper was famous for its whiteness and toughness. Junar in Beone district was one of the oldest homes of the industry and there were once 50 factories in working order in that place. 2

Only thirty years ago, in Bengal a large class of Mohammedans known as Kajjis was engaged in the industry in the districts of Hoogly, Howrah and Burshidabad. At one time, thus the art of paper making was quite flourishing. But it gradually decayed though it never became entirely extinct.

Even now in several parts of the country like Kashmir, Hyderabad, U.P., C.P., Bombay and Madras and in jails throughout India, paper is made by hand from the waste paper and to a small extent from hemp, jute and other fibres. This paper is used mainly for writing purposes. But the pity is that the methods employed are most primitive. In this age of engineering and scientific advance, it is ridiculous to try to make paper entirely by hand. It is said that the Kashmir paper industry has remained unaltered since its introduction in the reign of Zainul-abadin (1420-1470). The quality of paper made, except in Hyderabad and Kashmir, is generally very inferior, for the paper lacks uniformity in size, weight, thickness, finish and colour. The paper is inefficiently sized and the cost of manufacture is also excessive. The total cost of one mound of paper in Kashmir is estimated at Rs. 2.8/- of which the cost of materials is about Rs. 7/6/-, the rest being made up of wages and manufacturing charges. 3

It is a happy sign that strenuous efforts are being made to revive this ancient and useful art. With this

2. Ibid., p. 2.
3. Indian Information Series, August 1, 1939, p. 53.
and in view, the industrial section of the Indian Museum Calcutta has collected about twenty samples of hand-made paper from Kashmir, Manipur (Assam), Ahmedabad and Shan States. A sample from Nepal is said to last 1,000 years or more and an exhibit of commercial importance which has been lately added is a sample of 4.2 lbs. of paper manufactured from 10 lbs. of air-dried bamboo culms. Paper makers of Howrah, Hoogly and Murshidabad are also trying to revive the industry and are supplying the Calcutta market. The All-India Village Industries Association has started manufacturing paper from straw, waste paper, jute plant refuse and other materials in Bengal, Bihar, Bombay, Orissa and elsewhere. Production of hand-made paper has been taken up by the Benares University. The Industrial Research Laboratory of the Industries Department Bengal is also concentrating on investigating the possibilities of hand-made paper. The Forest Research Institute Dehra Dun has undertaken experiments at the instance of the Industries Department of the U.P. Government, to see how the hand-made paper industry can be developed and the existing methods improved. It may be suggested that if the mills supply pulp to the paper makers, it will prove quite helpful to them and the resuscitation of this ancient industry will be facilitated.

There is no doubt that these efforts will soon bear fruit and the old cottage industry of ours, phoenix-like, will rise again. The hand-made paper is in good demand in America and Europe. In China and Japan even today large quantities of paper are made by hand. In England too, the most expensive writing and drawing papers are made by hand. There is thus a good scope for the industry. But it will be necessary to overhaul the old industry, introduce new methods
and properly to organise the industry on cooperative
lines to obviate the difficulties relating to finance
and marketing.

THE MACHINE-MADE PAPER.

It is the modern paper industry in India which is
the more important. We shall now examine its various
aspects to note the structural changes that have taken
place in recent years.

RAW-MATERIALS.

It is essential that the main raw-material of the
paper industry should be abundant and cheap, for the
other costs viz., the cost of other materials, of
fuel and that of manufacture are nearly three times
the cost of the main raw-material. The Paper maker
has therefore drawn his raw-material from numerous
sources like rags, grasses and the forests, where the
supplies are both plentiful and inexpensive.

Cotton rags have been used for making paper from
times immemorial and even now rags are considered
indispensable in England for making high class paper.
The rags now used by the modern mills consist of mill
cuttings, tailor’s cuttings, worn and torn clothes,
hemp ropes, jute, old gunny bags, materials from
textile mills and waste paper. The Indian Mills, using
grass and bamboo, use waste paper and paper cuttings
to the extent of 1 to 6 per cent and rags below 1 per
cent. The Indian rags are, however, very inferior and
rag collecting is not properly organised as in England.
Therefore high quality rag paper cannot be made by the
Indian Mills and sold at economical rates.

1. Report of the Indian Tariff Board on the grant of
   protection to Paper and Paper Pulp Industry (1938),
and Shri Gopal Paper Mills at present use rags to
the extent of 15-20% partly due to the insufficiency
of their pulp plant and partly to the lesser cost
of rag pulp.
India abounds in different species of grasses like munj, ullas, dab, khar, kens etc. But most of them are so intermingled with weeds that their separation is either impossible or uneconomical. After due trial, Sabai grass was found to be the most suitable and became the staple material for the Indian paper industry. Although Sabai grass paper is strong and durable and can be used both for writing and printing, yet its harshness makes it intractable in the printing machine. Partly on account of the fact that grass is generally mixed up with accidental impurities and partly due to the structure of grass fibre, the paper made therefrom has a poor finish and spotted surface. Further, the pulping plant for grass used in India so far is a mere imitation of that for Esparto Grass. Hence suitable Sabai pulp has not been developed in India with the result that grass-made paper is not of a high quality. The market for paper made mainly from grass is thus restricted.

Grass will, however, continue to be used as a necessary ingredient for making paper, though it has now been supplanted by bamboo as the staple raw material for the paper industry. The available supply of Sabai grass was estimated by the Forest Department approximately at 50,000 tons per annum.

India has presented to the world a new material viz., bamboo for paper-making purposes. The introduction of wood pulp and revolutionised the paper industry. By turning out cheap paper, it had increased the demand manifold, to meet which reckless destruction of the forest wealth of the world began at a rate that the exhaustion of supplies appeared to be certain. In the words of William Reitt 'any single one of the great London daily papers cut its way through the produce of 5,000 acres in a year' and the forest wealth 'went
galloping down, the ever-open maw of the hungry press. Mr. Fraser Story estimated in 1931 that the merchantable conifer forest would not last for more than 38 years at the present rate of consumption. The exploitation of bamboo wealth of India is, therefore, timed well to fill up this gap. Abundant supplies of bamboo exist in India where conditions of exploitation are highly favourable. Water transport to the manufacturing sites is also available. These supplies are sufficient not only for Indian needs present and future, but according to William Raitt, for the whole of the world. The cutting rotation of bamboo is four years instead of 60 years for wood and hence a perpetual supply is assured. On account of its dense growth, the labour cost of extraction of bamboo is also low. Moreover, it does not get mixed up with accidental impurities. The bamboo paper is therefore singularly free from the blemishes found in the grass-made paper and it not only possesses initial strength but retains sufficient durability. Superiority of bamboo to other paper-making materials has been established during the last few years. Only about 7 years ago, it was in the experimental stage.

That remarkable changes have occurred in the raw material position of the paper industry is evident from the fact that during the short period, 1931-32 to 1936-37, the use of bamboo pulp has increased 269%, grass pulp 27% and the imported pulp has decreased 45%.

India has not yet exploited her vast forest wealth for paper making. In the Himalayas there are vast stretches of pine, spruce and fir. In view of the fact that a suitable staple material like bamboo is available in India in abundant quantities, it may not be economical to exploit wood for chemical pulp-making. But the production of mechanical pulp from Indian wood has a brilliant future. A proposal for the erection of a mill using pine and silver fir from Kashmir is under consideration and a new development of considerable importance may be expected.

Begasse, a by-product of sugar industry, is another raw material, plentiful supplies of which are waiting in India to be used for paper making. Although the various mills that have tried it so far have not found it suitable for high class paper, yet it offers vast possibilities for the making of cheap paper like newsprint. The Forest Research Institute Dehra Dun is conducting the necessary experiments in this connection.

LOCATION OF THE INDIAN PAPER MILLS.

A paper mill should be located in proximity to the raw material and fuel supply, for a ton of paper requires for its production three tons of Sabai grass or 2.38 tons of bamboo, and 5 to 6 tons of coal. Plentiful supply of clear fresh water all the year round is also necessary. Vicinity of a seaport for the import of machinery and materials and exports of paper by the coastal routes will also be a great help.

The present location of the Indian paper mills and their regional distribution are not quite satisfactory. The Shree Gopal Paper Mills in the Punjab have to draw their supplies of grass from Nepal at a distance of 500 miles and depend upon
Bengal for its coal supply. The Deccan Paper Mills, Poona are unfavourably situated with respect to their supplies of coal. Location of the Star Mills, Saharnpur is also not satisfactory, for it is too close to the Shree Gopal Mills and suffers from the same handicaps. The Orient Paper Mills (Sambalpur, Orissa), however, are quite favourably located. They have the benefit of proximity to bamboo forests and Talcher coal fields; C.P. and Chhotanagpur limes are also available nearby. Besides cheap labour and good climate, they also enjoy a central position in India and can cater for all principal markets. Sites near about Chittagong and near Cuttack in Orissa on the bank of the Mahanadi river are equally suitable for the setting up of paper mills.

It is worth noting that but for the appearance of bamboo, the location of several more mills would have become unsatisfactory. William Reitt pointed out in 1910 that the economic limit beyond which it ceases to be profitable to pay freight on material had long since been reached. This was also the view of the Tariff Board of 1925 with respect to Sabai grass as the raw material. Switching on to bamboo in several cases has thus saved the situation.

As for the regional distribution of mills in 1937, Bombay had 4 mills, Bengal 3, Madras including Madras states 2, U.P. 1, and Punjab one. Bombay, Bengal and U.P. claim 75% of the mills and employ 88% workers; Bengal alone employed 64% of the total number.

of workers employed in the industry.¹ Bengal and Bombay represent nearly 67% of the authorised capital and about 80% of the total output.² The industry is thus highly centralised. Instead of carrying cheap material like paper such long distances, it is necessary that the industry should be decentralised by the establishment of small economical units in the chief consuming centres. Development of hydro-electric power can be helpful in this.

It has also to be remembered that if the advantages accruing from present favourable sites are to be retained systematic regeneration of bamboo areas, growing Sabai grass as a commercial crop in others and improvement of transport facilities will be essential.

**INDUSTRIAL UNIT AND EQUIPMENT.**

The paper industry too is subject to the law of Increasing Returns, for an increase in the scale of production, within limits, leads to the reduction in the incidence of administrative and over-head charges. Establishment expenses and remuneration of managing agents per unit are also less. This is illustrated from the following statement relating to the three principal paper mills.³

<table>
<thead>
<tr>
<th></th>
<th>% increase in output</th>
<th>% decrease in the cost of paper</th>
<th>% decrease in the cost of manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tughur Paper Mills Co.</td>
<td>23.8</td>
<td>23.0</td>
<td></td>
</tr>
<tr>
<td>Ramu Paper Mill Co.</td>
<td>45.2</td>
<td>43.8</td>
<td></td>
</tr>
<tr>
<td>olan Paper Pulp Co.</td>
<td>143.1</td>
<td>34.6</td>
<td></td>
</tr>
</tbody>
</table>

The whole of this decrease in the costs cannot

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¹. Large Industrial establishments in India, 1937 (1939), p. 56.
². Statistical Abstract for British India 1928-29 to 1937-38, Table Number 207, p. 522.
be attributed to the increase in the output. It is partly due to the fall in the price of materials and the greater efficiency of working. But there is no doubt that large economies result in the cost of coal, wages, stores, supervision and miscellaneous expenses as the result of increased output.

Different views have been put forward as to the economical size of the unit in the paper mill industry. It depends on grades and sizes of paper to be made and quantity of raw and auxiliary materials available at hand. In their evidence before the Tariff Board 1931, the Titaghur Paper Mills Co., suggested a complete four-machine mill as the economic unit, whereas the Bengal Paper Mill Co. and Indian Paper and Pulp Co., considered two-machine mill as economical. But the general opinion in the trade is that a two-machine mill can be run fairly economically. The position of the Indian Paper Mill Industry in this respect is not quite satisfactory. Several old mills like Padamjee Paper Mill, Bombay, Gujrat Paper Mills, Ahmedabad and Carnatic Paper Mills, Rajahmundry are still one-machine mills. Even new mills like the Star Paper Mills, Saharanpur, Orient Paper Mills, Orissa, Rohtas Paper Mills, Dehri-on-Sone and Mysore Paper Mills, Bangalore are also equipped with only one machine. Thus several of the industrial units in the Indian paper industry are smaller than the optimum size.

However, some mills have spent large amounts in making additions to, and improvements in, the equipment of the paper-mills their plant. Rs. 47 lakhs were spent between 1925 and 1931; and since 1931 such

expenditure has varied from Rs. 10 lakhs to Rs. 14 lakhs per mill. Considerable structural alterations and renovations have been effected. A large quantity of new plant has been installed such as New Beaters, Boilers, Power Plant, Strainers, Grass and Bamboo Pulp Cleansers, Sand Traps, Soda Recovery Plants etc.

Although serious attempts seem to have been made recently in modernizing the plants, yet there are still some important deficiencies. The beating-house plant is generally out-of-date. Much of the machinery is still old, if not obsolescent. In some mills recovery plants are inadequate and unsatisfactory so that the recovery is abnormally low. The plant as a whole is not a balanced one, for the pulp-making capacity and the paper-making capacity differ. In recent years the mills have been concentrating on improving their pulp-making plant with the result that whereas their pulp-making plant is quite efficient and up-to-date, the paper-making plant is a inefficient and obsolete.

As the result of improvements made, mill efficiency has considerably improved. The works cost which was Rs. 227.47 per ton in 1924-25, came down to Rs. 195.66 in 1930-31, whereas the average of four mills was only Rs. 123 in 1936-37. But in several mills there is room for further economies in the use of chemicals, power, fuel and labour. Substitution of sulphate for soda process (in mills not using grass), where it has not so far been done, will also reduce the costs. Further, India is a pioneer in the manufacture of pulp from bamboo and as our mills acquire more experience, costs will no doubt go down.

2. Ibid., pp. 26-27.
Research

Paper making is a complicated engineering and chemical process. Research in the right process is therefore of utmost importance. But it is especially important in India where pulp is being made from bamboo for the first time in the world.

Research useful for the paper industry in India is not properly organised. No serious attempts have yet been made to study Indian conditions of paper-making. No-where else is bamboo used as raw material. But in India plants and machinery are installed which foreign are suitable for raw materials and conditions and they cannot be as economical and efficient as those which may be devised to suit our own raw material. Further, the mills carry on their own experiments which involves unnecessary duplication in equipment and hence uneconomical. Elsewhere, for example at McGill University in Montreal (Canada), the University authorities, Paper Makers' Association and the State work together at one place for purposes of research. Here also therefore it is necessary that research should be centralised and the mills should contribute a part of the expenditure, the rest being financed by the State. The average expenditure between 1931 and 1936 on the Pulp Section of the Forest Research Institute Dehra Dun was Rs. 25,000 per annum which is not at all commensurate with the requirements of the industry and far less adequate for its future needs.

The Forest Research Institute at Dehra Dun has, even with the limited resources at its disposal, done quite a useful work. Experiments conducted there have shown that a good cheap wrapping paper can be manufactured by a mixture of indigenous mechanical wood pulp and chemical grass pulp. Thus a new industry may be built up using only indigenous material to replace
the large quantities of cheap wrapping paper that we import now. The Institute is experimenting with Ulla grass extensive supplies of which at present lie unused and with chir (a type of reed) the rejections and lop and top of which are wasted when chir is converted into sleepers. Experiments are also made for the manufacture of Kraft paper from chir and bamboos. Besides pine, many other varieties of trees have been selected for experimentation of wood pulp. Moreover, Dr. Bhargava of the Forest Research Institute is conducting a preliminary survey of the raw materials available in the country for the manufacture of newsprint. So far we have not made pulp from bamboo by mechanical means — the only way to get cheap pulp for newsprint. Kashmir produces fir cones, while in some parts of U.P., particularly in Upper Himalayas above 10,000 feet, other raw products are also available. Hopes of producing newsprint in the near future may, therefore, reasonably be entertained. But if the usefulness of the Forest Research Institute to the paper industry is to be enhanced, more liberal expenditure and strengthening of the staff will be necessary.

**SOME SALIENT FEATURES OF THE STRUCTURE OF AND NEW DEVELOPMENTS IN THE INDIAN PAPER INDUSTRY.**

Supplanting of Sabel grass as the staple raw material by the bamboo, modernisation of plants and reduction in costs are some of the features that have already been noted. There has also been a general tendency to substitute electric drive for the machines.

Moreover, there is now a wider range of output and marked improvement in quality. The head of the Titaghur Department in Bird and Co., Calcutta, with whom the writer had the benefit of discussing the present position of the industry, is of the opinion that they can manufacture almost all qualities of paper
except very superior ones and the newsprint. Besides manufacturing ordinary writing and printing paper, the Indian mills are breaking new grounds. They now manufacture satisfactory quality of drawing cartridge. One mill has been successfully making blotting paper, the quality of which has been found thoroughly satisfactory by the Government Stores. Some mills have also commenced making kraft paper and sand paper. The manufacture of straw boards is also growing in importance. Besides, India is now making packing paper. About 3,000,000 yards of water proof packing paper is being manufactured by several firms in Madras, Bombay and Calcutta. Till very recently, the manufacture of this type of paper could not be taken up on a large scale, as the supplies of suitable bitumen were not forthcoming. But a recent investigation by the Supply Department has led to the discovery of supplies of indigenous bitumen. This is a momentous discovery and will open out a new line of considerable importance to the Indian paper-maker. In 1933-34, we imported 400,000 cwt. of packing and wrapping paper valued at Rs. 67,00,000.

The following statement shows the changes that have taken place in the character of production of Indian paper mills during the last seven years.

<table>
<thead>
<tr>
<th></th>
<th>1933-34</th>
<th>1938-39</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whites and unbleached printing, other than Newsprint.</td>
<td>364,560</td>
<td>591,430</td>
<td>62.2</td>
</tr>
<tr>
<td>Coloured Printing other than Newsprint.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Writing paper and Envelopes.</td>
<td>270,598</td>
<td>394,343</td>
<td>45.9</td>
</tr>
<tr>
<td>Manilla.</td>
<td>14,508</td>
<td>21,678</td>
<td>49.4</td>
</tr>
<tr>
<td>Bedami.</td>
<td>29,228</td>
<td>43,088</td>
<td>47.0</td>
</tr>
<tr>
<td>Paddock Papers</td>
<td>28,555</td>
<td>82,116</td>
<td>149.0</td>
</tr>
<tr>
<td>Pulp Boards.</td>
<td>7,117</td>
<td>14,634</td>
<td>175.6</td>
</tr>
<tr>
<td>Blotting.</td>
<td>5,310</td>
<td>14,472</td>
<td>175.6</td>
</tr>
<tr>
<td>Other kinds.</td>
<td>29,326</td>
<td>83,772</td>
<td>185.6</td>
</tr>
<tr>
<td>Total</td>
<td>873,160</td>
<td>1,416,267</td>
<td>62.1</td>
</tr>
</tbody>
</table>

1. Indian Information, November 15, 1940, p. 840.
As for the quality, the Controller of Stationery who purchases about 20% of the Indian paper mills' production testifies to a marked and satisfactory improvement in quality. Specks and blemishes and variations in the thickness of the sheets have almost disappeared. The sheets are now better cut. The quality is expected to improve still further.

Among the other developments may be noted the flotation of a company near Calcutta for the manufacture of caustic soda and chlorine. Caustic soda and bleaching power are going to be manufactured by a factory in Southern India and soda ash by a factory in Northern India.

A distinctive feature of the Indian paper industry is the lack of specialisation. Ours is a combined pulp-making and paper making industry, whereas the paper mills in Europe and America get the pulp ready made. This specialisation gives the foreign manufacturer a pull on our industry. In our country also pulp and paper mills should be separated. The pulp mills should be established in or near the forests and paper mills near ports or other big business centres. Again, individual paper mills should specialise in making certain grades best suited for their equipment.

Another noteworthy feature of our industry is that the mills belonging to the Indian Paper Makers' Association have generally combined to maintain prices and for the allotment of contracts for the Central and Provincial Governments. This cooperation can be further extended to bring about necessary rationalisation of the industry. There is no centralised control in our paper industry, whereas in Japan the Paper Makers' Association exercises control over the major portion of the industry which produces about 96% of paper and 98.5% of the entire pulp of Japan.
CONCLUSION.

Under the policy of protection the Indian paper industry has made good progress. The statistics of production, profits and share values testify to the healthy condition of the industry at the present time. But the position is not unassailable. The setting up of a large number of new mills may seriously impinge on the existing supply of raw material and the present limited market. A very great responsibility therefore rests on the prospective manufacturers of paper and the State to guide and direct the future development of the industry on a properly planned system. Here is a country teeming with raw materials from which paper can be made. There cannot be the least doubt that in course of time India will be able not only to satisfy her own needs for paper but also to develop an export trade at least in pulp. In the country itself the demand for paper is bound to increase as the drive against illiteracy started by the Provincial Governments gathers momentum. Per capita consumption of paper has increased from 0.96 lbs. in 1929-30 to 1.2 lbs. in 1938-39 and it is sure to register a more rapid increase in the near future. The Tariff Board in 1938 put the annual increase in demand for paper in India at 1500 tons (vide Report Page 43). It will, however, take a very long time indeed for India to reach the level of paper consumption in advanced countries like U.S.A. where per capita consumption is 240 lbs.

Effect of war on Paper industry in India has been most drastic. By the extension of war into the Baltic Basin, foreign wood supplies were completely cut off. Therefore the industry will have to depend altogether on indigenous materials. Mechanical wood pulp has not been made in India so far. It requires large forest reserves—reserves in the vicinity of a port
where Hydro-electric power is available. Such a combination of conditions does not exist here at present. Therefore the Indian paper industry can only extend its activities in the manufacture of wood-free papers. A sharp rise in the prices of stores and chemicals is another difficulty in which the paper industry has been placed. A real shortage of paper may be apprehended if the war is prolonged.

The war will certainly enable Indian paper mills to make more money. But it will be in the interest of the industry that this extra money is spent on improvements in plant and machinery.

Among the other suggestions to improve the Indian paper industry may be mentioned the careful exploitation of forests, training of educated Indians in the various aspects of the trade and the making of bleach liquor and caustic salt by electrolytic process to be attempted in every mill or the setting up, in a suitable place, of a separate mill for the purpose by several mills combined.
CHAPTER VI.

INDIAN IRON AND STEEL INDUSTRY.

The present age has been frequently and rightly called the 'Steel Age.' A most cursory glance within home, at the farm, at the factory, and on the road we travel, will be enough to show the great importance of iron and steel in our times. It seems incredible that the various wonders of the present age viz., the radio, television, aeroplane etc. should all be dependent upon one 'key industry,' the manufacture of steel. The world without iron and steel is unthinkable. Iron and steel are the bases of our existing civilization and without them it will inevitably perish. Iron and steel play such an important part in modern industrial communities, that this industry is considered to be of primary national importance.

It has already been mentioned that Indians were no strangers to the art of smelting iron. The Kutab Minar near Delhi is a standing monument of the skill once attained by Indians in this respect at a very early age. But the manufacture of iron and steel on modern lines and on a large scale dates from a recent time. The early attempts at making iron and steel almost invariably failed on account of want of expert preliminary inquiries, inefficient internal management, weak control of the agents, lack of commercial knowledge and above all owing to the difficulty of securing adequate and timely financial assistance.

But the Indian Iron and Steel Industry now stands on a sound footing and has shown a satisfactory progress.

in recent years as is shown by the figures given below:

<table>
<thead>
<tr>
<th>Pig Iron</th>
<th>Iron castings and manufacture</th>
<th>Steel Ingots</th>
<th>Finished Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>1933-34</td>
<td>1,109,300</td>
<td>67,935</td>
<td>720,917</td>
</tr>
<tr>
<td>1939-40</td>
<td>1,837,638</td>
<td>129,299</td>
<td>1,070,385</td>
</tr>
</tbody>
</table>

The Tata Iron and Steel Company alone produced in 1939-40, 777,000 tons of saleable steel which is 62,000 in excess of the record production last year.

RAW MATERIALS.

The most important raw materials that the iron and steel industry needs are iron ore, coking coal, limestone and refractory materials. Our iron ore resources are enormous and are estimated at 3,000 million tons. The iron content of our ore is much higher than is usually found in Europe and America.

Sufficient supplies of coking coal too are available. Dr. Peace in a letter to the Tariff Board in 1924 pointed out that on the assumption that three tons of coking coal are necessary to produce 2 1/2 tons of steel, there was enough coking coal in India to supply the iron and steel industry with four million tons of metallurgical coke per annum for the next 150 years.

The quality of the Indian coal is not high, for its ash content is three times as high as elsewhere. But

1. Monthly Statistics of the Production of Certain Selected Industries of India for the months of March, 1936 and February-March, 1940.
2. Chairman's speech in the Annual General Meeting of the Tata Iron and Steel Company held on 15th August, 1940.
3. Our ore contains 60% metallic iron as compared with 30% English and 45% Spanish (a note, on Iron and Steel Industry in 'The Indian Nation,' of 4th May, 1940.
this is not a serious handicap, for the iron and steel industry requires a slag producing material and this extra ash to some extent serves this purpose. Besides, the low price of coal and ore and the close proximity of the two off-sets the disadvantage of poor quality. India also possesses quarries abounding in the best quality limestone scattered all over the country. Although most of them are too distant to be of any economic use to the industry, yet adequate supplies can be drawn from a reasonable distance. The position regarding refractory materials is also satisfactory, for fire-clay of good quality can be found in almost all parts of the country and fire-bricks are being extensively made.

LOCATION OF THE IRON AND STEEL WORKS IN INDIA.

Let us now consider if the existing iron and steel works are properly located. The raw materials required by this industry are very bulky. For every ton of finished steel, five tons of raw materials are necessary.\(^1\)

As the finished product, comparatively speaking, can bear long transport, the factor of market may be practically ignored and the location therefore must be determined exclusively by the proximity to raw materials. Judged from this point of view the location of our iron and steel works is quite satisfactory. As Mr. Petterson pointed out in his evidence before the Tariff Board in 1924, the Tatas held at a distance of about forty miles, iron ores which would keep their works going at their capacity at the time, for 300 years.\(^2\) Only--they-- Their coal mines are at a distance of 120 miles and their coking coal is also


sufficient for 300 years. Only, they have to draw
limestone and dolomites from longer distances than
they would like. Besides commanding the necessary
materials from within economic radius, the Tate works
are situated on the junction of two rivers assuring
adequate water supply for the generating of power and
for cooling purposes. The Indian Iron and Steel
Company has its own iron ore deposits at a distance
of 172 miles. The works of the new Company, the Steel
Corporation of Bengal, are located at Napurie adjacent
to the Indian Iron and Steel Company's works at Hirapur
near Asansol about 130 miles from Calcutta. The main
raw materials, coal and iron ore are drawn from a
distance of 40 miles or so. The Mysore Iron and Steel
works situated at Bhadravati draw their main raw
materials from the extensive neighbouring forests and
the rich iron deposits on the Kemmangundi Hills of the
Bababudan range all within a radius of 25 miles from
the works. The Hydro-electric energy transmitted
from Sivasamudram supplies the power for running the
plant and the river Bhadra flowing alongside the works
ensures an adequate water supply. Bhadravati plant is
ideally situated for the production of special steels,
ferro-alloys and other ingredients for ammunition. Thus
the location of Indian iron and steel works in India
is quite favourable.

In order to understand how favourably our iron
and steel works are located, it is necessary to have
an idea about the conditions obtaining elsewhere. In
Europe either coal or iron-ore has to be brought from
a distance of more than 200 miles and in America the
distances are much longer. 2 Pennsylvania district which

is the greatest centre of steel manufacture in the world, draws its supply of iron ore from a distance of over 1,000 miles. Even when in England and on the Continent the iron ore deposits and coal mines are situated in close proximity, the balance is still in our favour on account of the superior quality of our ore and the low price at which it is available. Indeed, there are few places in the world where such a high quality ore can be landed at the works at so low a price. No wonder that India can produce the cheapest pig iron in the world.

Jamshedpur, however, is not a suitable place for the location of a wire factory, if it has to use imported rods, for then it will have to pay freight first on the raw materials and then on the wire-nails to despatch them to Calcutta, which is a big market for the purpose.

The location of the iron industry is determined more or less by geological factors. As the iron ore and coal deposits of the country are concentrated, the location of iron works must be confined to a particular area with the necessary handicap in a country of long distances like India. 

THE EQUIPMENT OF THE IRON AND STEEL WORKS.

The chief iron and steel works in India are the Tata Iron and Steel Company, the Indian Iron and Steel Company, the Mysore Iron Works, and the Steel Corporation of Bengal formed in 1937.

The Mysore Works covering an area of 100 acres, have the unique distinction of having the only charcoal blast furnaces in the world constructed recently. It is also equipped with a wood distillation plant for the production of charcoal, by-products recovery plant, a pipes foundry, a Siemens - Martin's basic open hearth
furnace with a rolling mill for the manufacture of commercial steel sections, a general foundry and a machine shop with auxiliary boiler plant and a reserve steam-power unit. But, as the Tariff Board of 1934 remarked (vide report page 148), there is no demand for charcoal iron as such and the world market for wood distillation product has also suffered a serious decline. The Mysore Government sanctioned, in 1934, installations for the manufacture of steel to meet an estimated demand of 30,000 tons nearly in the area where it has a freight advantage. For the manufacture of refractory bricks required in the works, a brick plant has been added. Recently a cement factory has been erected in the works with 20,000 tons annual capacity which will utilise slag, the waste product of the blast furnace, for the manufacture of cement. The annual production of charcoal pig iron in the Mysore works is nearly 24,000 tons and that of finished steel products 20,000 tons. Long-range plans for the development of the works are being examined. One of these, concerning the manufacture of special steels and ferro-alloys will be soon taken up and the machinery, for which orders have been placed in the United Kingdom, is being awaited.\footnote{1}

The Indian Iron and Steel Company possesses an up-to-date plant comprising of two blast furnaces, each with a daily capacity of 750 tons of pig iron. There are five battery of by-product coke ovens with an acid plant capable of supplying all the coke required.

As for the Tatas, the Statutory Inquiry in 1926 revealed that although improved methods had been introduced in the blast furnaces and in the open

\footnote{1. See Sir Mirza Ismail’s address to the Mysore Representative Assembly (Times of India, dated 21.6.40).}
hearth departments, yet their works were not as a whole properly balanced. The coke ovens could not turn out sufficient coke for the manufacture of pig iron, if all the blast furnaces were in full operation. Also, the steel furnaces could not absorb all the pig iron which could be made nor could they produce enough steel to keep the rolling mills fully occupied.\(^1\) Moreover, some parts of the plant were old and hence uneconomical. For instance it cost nearly Rs. 20 lakhs more to produce articles rolled on the blooming mill, old 28"-mill and the old bar-mills than to roll the same articles on new mills.

But on account of the additions, alterations and improvements effected since then, most of the deficiencies noted then have been removed and proper balance restored to the plant. The coke-oven plant of the normal by-product type is well laid out, equipment of the blast furnaces is well up-to-date and they are the only ones in the British Empire capable of producing 1,000 tons per furnace every 24 hours. The blooming mill is sound in design and the sheet mill and the billet mill are of modern continuous type. The new 28"-mill is also well-suited. A new type of sheet mills was adopted in 1933. More units of sheet mills have been added. A third mechanised unit of the sheet mills was brought into operation in March, 1940. Two of the blast furnaces have been greatly enlarged and four blowers of unusually high capacity installed. Most of the open-hearth plant has been rebuilt.

In their representation to the Tariff Board, in 1933, the Tata Company gave a long list of improvements made and a comprehensive scheme of capital expenditure contemplated. Most of the programme has now been

\(^1\) **Indian Tariff Board, Statutory Enquiry 1928 (Steel Industry),** pp. 17-18.
carried out. A new 1,000-ton blast furnace, one of the largest and most up-to-date in the world and a new Gas Cleaning plant were put into operation in December 1939. A new Turbo-Blower plant for the supply of blast to the new furnace has been completed. A new Magnesite plant came into operation during 1940 and a dolomite kiln is almost ready to commence operations.

Although still in several cases Tata's works fall short of the maximum efficiency attainable, for it is not possible to overhaul every part in a gigantic concern like this simultaneously, yet it can be safely stated that the Tatas have kept fairly abreast of the times. They have been spending large amounts of money ungrudgingly in modernising their plant. During ten years 1929 to 1939, their capital expenditure amounted to Rs. 7½ crores and additional sum of Rs. 154 lakhs during the current year. To enable India to add further to its economic self-sufficiency in the matter of iron and steel, an elaborate programme of extensions during 1940 was planned and on completion of this programme, the company's production will have touched a new record of 1½ million tons of steel ingots and about 200,000 tons of finished steel.

The Steel Corporation of Bengal started with many initial advantages on account of the facilities provided by the Indian Iron and Steel Company. It had no need to set up blast furnaces of her own, as the Indian Iron and Steel Company agreed to supply the whole of Corporation's requirements of hot iron suitable for steel making purposes and to the specifications

1. Chairman's speech in the Annual General Meeting held on 15th August, 1940.
of the Corporation at a price equal to costs of manufacture plus 5 per cent. The works of the Corporation were thus enabled to start operations within 2½ years of the flotation of the Company — a record for steel works anywhere in the world. The initial production aimed at (as given in the prospectus) is 200,000 tons of finished steel products per annum. The productive capacity of the iron and steel industry in the country, has thus, been increased by the starting of the operation by the Steel Corporation of Bengal. A further effort to add to this capacity has been made by Government by the organisation of the re-rollers throughout the country and the supply to them of the scrap required for the purpose.

The Balfour Committee on Trade and Industry calculated that a modern steel plant in order to be run economically should have a minimum capacity of 300,000 tons annually. Judged from this standard, the operations of the Tata Company are certainly on an economic scale and the Steel Corporation of Bengal too is designed on a scale which may be called economical.

ORGANISATION OF THE INDIAN IRON AND STEEL INDUSTRY.

The Indian iron and steel industry is organised on individualistic basis. Apart from occasional agreements as to the sharing of market e.g. agreement between the Tata Company and the Indian Iron and Steel Company to share the market in China, Japan, and America in agreed proportions, the iron and steel companies have remained aloof. It is possible for the small number of companies working in the field to come to an agreement and usher in an era of rationalisation on the lines of German Industry. But no such

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1. An agreement has also been recently entered into between Tata Iron and Steel Co. and the Steel Corporation of Bengal and the latter is making use of the Sales Deptt. of the former to market its products.
step has been taken in India except that the Indian Iron and Steel Company and the Bengal Iron Company amalgamated with the object of closing the obsolete plant of the latter and concentrating the whole of production in the up-to-date works of the former.  

In 1933, representatives of iron and steel interests in India met at Bombay to consider the possibility of forming a merger with a capital of £3,500,000. Such a development would have vitally affected the structure of Indian iron and steel industry. But the negotiations unluckily broke down.

As for the relation between different sections of the industry, the Tata Company has always emphasised its desire to foster and encourage the nascent subsidiary industries. They have assisted seven works by leasing land, supplying materials, water, electricty and municipal services at favourable rates. But in the case of re-rolling mill industry, the Indian Tariff Board of 1934 was constrained to depurate the attitude of the Tatas towards this newly rising and promising industry. The Tatas began underselling these re-rolling firms and adopted the usual hostile tactics of the big concerns to crush a young rival. These smaller mills perform an essential function in

1. The Indian Iron and Steel Company has also a contract with the new company, Steel Corporation of Bengal, to supply water, gases, electric energy for light and power and other services e.g. the benefit of its town facilities like policing services, hospital facilities, town lighting, town water, road upkeep, schools etc. It will supply the whole of the Corporation's requirements for hot iron suitable for making steel. Besides payments in respect of the various services, the Indian Company is to be paid one-fifth of the profits of the Corporation. All these facilities have enabled the Corporation to effect considerable savings on the capital account and also to accelerate operations.

2. For the interest of the Tata Co., in the subsidiary companies, vide Indian Tariff Board, Evidence recorded during the enquiry of 1934, Vol. I, p. 114.

a vast country like India where the greatest
difficulty is that of economical distribution of heavy
products like iron and steel, for these mills can
satisfactorily meet the requirements of the local area.

Then there are some allied industries which have
developed along the main iron and steel industry. The
wagon industry has a good future. The tin-plate
industry has made a remarkable progress and has also
good prospects on account of increasing use of tin.
Then there are about 80 engineering firms scattered
throughout the country without any close-knit organisa-
tion and often engaged in cut-throat competition among
themselves. A radical re-organisation of the
engineering industry is necessary involving weeding
out obsolete plants, organising production on increased
standardisation and above all introducing greater
degree of specialization and eliminating internal
competition. At present we have, on the other hand, too
much of the laissez-faire policy which is not doing
any good either to the industry or to the country.

LABOUR IN INDIAN IRON AND STEEL INDUSTRY.

Labour in our iron and steel works is fairly stable
and has identified itself to a greater degree with the
works they first joined. As for efficiency, although
our labour is admittedly below the European and the
American standards, yet the employers on the whole,
seem to be quite satisfied considering the wages they
pay. There has been improvement in efficiency all-
round in the Tata works. The labour cost per saleable
steel fell from Rs. 33.6 in 1927-28 to Rs. 29.3 in
1932-33. The production per head at the blast furnaces
has gone up from 214 tons in 1923-24 to 1369 tons in
1932-33, at the open hearth from 156 tons to 305 tons
and at the duplex plant it has increased during the
same period from 78 tons to 560 tons. The Tata Company
has also paid due attention to the training of labour and for this purpose they are running a regular college of mechanical engineering of their own.

The labour conditions are generally satisfactory and the Tata Company claims with some justification that in emoluments, amenities and privileges provided for their labour, their treatment is as liberal as, if not more liberal than, any other employer in India. The housing conditions have received their special attention. Besides building excellent bungalows and quarters for their employees, they have helped their approved employees, by leasing out plots and advancing money, to build houses of their own and 8,200 houses have been built in this manner and the total amount of building loans granted upto March 31, 1938 was Rs. 5,37,255. In 1926 only 34% of their employees got houses but in 1933, 56% could do so. Between 1928 and 1933 out of a total of Rs. 38 lakhs set apart for town capital expenditure, Rs. 21 lakhs were ear-marked for housing. The total capital expenditure that the Tata Company has incurred on the town planning including housing is Rs. 200.06 lakhs on which it bears a net loss of Rs. 24 lakhs on the average. The capital expenditure on hospitals and dispensaries upto March 31, 1938 was Rs. 6,73,220 and the recurring expenditure in 1937-38 was approximately Rs. 3.6 lakhs. The annual expenditure on public health and sanitation department in 1937-38 was Rs. 2,18,200. The total capital cost incurred on education so far is Rs. 5,15,842. The setting up of a new high school, 115 primary schools and 33 middle schools is contemplated during the next three or four years at a cost of nearly Rs. 5 lakhs and the annual recurring expenditure on education will rise from Rs. 1,24,500 in 1937 to over Rs. 3 lakhs in 1941-42.
The labour welfare work is conducted at the Tata Company very efficiently under a separate department. The company employs 50,000 people whose annual wages amount to Rs. 2 crores nearly. Besides supplying free ice and soda to all employees and boots to men engaged in hot jobs, the company maintains a women's rest house, men's wash houses and also hotels inside for food and refreshment. The benefits of cooperative movement have been made available to the employees and at the end of 1938, there were 26 cooperative societies with 11,582 members and Rs. 10,29,876 as paid-up share capital. The employees of the Tatas have also the benefit of a provident fund scheme since 1920 and there is also a profit-sharing scheme according to which a bonus equal to three months' pay was distributed to the employees in 1937-38 involving an expenditure of about Rs. 42,00,000. A gratuity equal to half a month's salary or wage for every completed year of unbroken service is also paid on retirement to all permanent non-covenanted employees getting not more than Rs. 500/- per month. The following figures of the net annual recurring expenditure relating to some items of the company's welfare work were supplied, in 1938, to the Labour Enquiry Committee appointed by the Bihar Government:

- Free ice and soda Rs. 31,000;
- Women's rest house Rs. 1,000;
- Maternity benefit Rs. 5,000;
- Picnics Rs. 10,000;
- Free supply of boots Rs. 43,000 and sports, games and free cinema shows Rs. 7,000.

In the matter of labour for our iron and steel industry we are still labouring under one serious deficiency. We have still to import skilled supervisors.

1. Three months' salary has again been given as bonus in 1940.
from Europe and America. Although Industralian has been going on at a fairly rapid rate, yet we have not been able so far to dispense with this foreign aid entirely. 

SOME DEVELOPMENTS ABROAD.

Before concluding, it will be of some interest to notice some of the important developments that have taken place in the post-war period in the iron and steel industry elsewhere. United Steel works Company (Vereinigte Stahlwerke A.G.) was formed in Germany, in 1926, controlling 40% of the total German production. It prepared a comprehensive scheme of rationalisation. Production of pig iron was concentrated in the most efficient furnaces mechanised to the last degree. The cost of transport from oven to furnace was reduced by the use of wagons mechanically loaded and automatically emptied. Specially equipped and favourably located plants specialised in the production of certain lines. Integration was the rule and pure rolling mills were non-existent. Steel plants were attached to iron smelting works and they in turn were connected with coal mines and, where possible, with iron-ore mines. Mechanisation and continuous processing resulted in wage saving to the extent of 80% in fire-plate rolling mills. Power consumption was reduced by one-third and losses due to corrosion and scrap were reduced by 50%. The degree of integration attained in Germany led to extensive utilisation of by-products. Waste blast furnace gas has been recovered and so also dust containing 30% of pure iron. Slag has been used in the form of cement and special building stone. The slag high in phosphorous has been ground and used as

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1. Although the output of the Tates doubled during 10 years 1924-34, yet the number of covenanted staff was reduced from 299 to 64 and it was further reduced to 42 in 1937-38.
fertiliser. Memorandum on steel industry published by the League of Nations in 1927 and the Report of the Delegation on iron and steel industry published in 1930 revealed that such developments had taken place more or less in other advanced countries also.

In England too in 1933, the iron and steel industry decided to improve the existing machinery. The trade associations representing the industry were affiliated to a new central organisation, the British Iron and Steel Federation. Thus a comprehensive organisation capable of exercising powerful influence on the conduct of the industry was created and given a quasi-monopolistic position in the home market. Production in the main divisions of the industry was also effectively controlled. A central stabilisation fund was created which had as its objects, inter alia, to make provision for eliminating redundant plant, to maintain a reasonable price level and also to assist in the development of new uses for iron and steel. The whole scheme shows a growing sense of collective responsibility. Through a series of amalgamations and trade agreements among the steel concerns, marked improvements were made in production, organisation and marketing technique resulting in increased efficiency and lower costs. Stewarts and Lloyds entered into a long-term agreement with the Lancashire Steel Corporation which resulted in the stabilisation of output. An arrangement which they made with the United Steel Companies helped to avoid duplication of plant and an understanding with "Tube Investments ensured price stabilisation. They have also acquired control of the Stanton Iron Works Co. Dorman Long and Co. amalgamated with the South Durham Iron and Steel Co. in 1933. The Lancashire Steel Corporation acquired in 1932 a number of local
steel works which effected rationalisation of the British Wire industry. Colvilles in Scotland were instrumental in bringing about a number of amalgamations. They entered into an agreement with Barrow Haematite Steel Co. The merger of Baird and Co. with Scottish Iron and Steel Co. in August 1939 is also not without significance. Improvement in efficiency so made is shown by the fact that in 1936 production was 8 to 9 million tons but in 1939 the output capacity increased to something like 14 million tons. Pig iron output per blast furnace rose from 47,900 tons annually in 1929 to 69,700 tons in 1936 and coal consumption fell from 38.2 cwts. to 33.2 cwts. 1

The Import Advisory Committee on Iron and Steel industry in England laid down in 1937 two important propositions which show a fundamental change in outlook and policy:

(1) There cannot be a return to the unorganised conduct, casual development and the largely unrestricted competition at home and from abroad;

(2) The state cannot divest itself of all responsibility as to the conduct of industry so vital to the national well-being.

The objective is to devise means to prevent excessive and ill-balanced expansion while not discouraging at the same time individual initiative, energy and willingness to take risks.

Such in brief are the developments that have taken place elsewhere. There is no doubt that the Tata works possessing, as they do, their own iron ore mines, quarries and coal mines, represent a fair degree of integration. They also utilise waste blast furnace gas in other parts of the works. Yet it cannot be said that our iron and steel industry is, as a whole,

efficiently organised. Greater coordination among the existing works will be of immense advantage. At least marketing arrangements can be made more economical and scientific. Speculation can help to do away with the duplication of plants and also with the necessity of replacing all types of plant when it becomes obsolete.

We have not come to the limit of the expansion of this industry in our country. The field for expansion will increase as the standard of living rises and the industrial development goes apace. There are some lines of production which we have hardly yet touched. All types of machinery have yet to be imported. It is therefore necessary that the future expansion is properly balanced and coordinated.

CONCLUSION.

India's potentialities in the production of iron and steel are vast indeed. There is easily a scope for two or three more works like the Tatas. With the initial advantage that we possess in the production of pig iron, it is not unreasonable to expect that India should be able to produce steel at least as cheaply, if not cheaper than, other countries.

The iron and steel industry has generally been a favoured industry in most of the countries. Special care has been taken to foster it. High tariffs and bounties were adopted as the means in Canada, Australia and Japan. The Australian Government deliberately paid a higher price for home-made rails. Bounties were paid in Newzealand, South Africa and British Columbia. In Italy, Belgium and France too, high import duties were imposed.

A greater measure of support and encouragement will certainly develop the Indian Iron and Steel Industry also to the fullest extent possible.

The prospects of the industry have immensely improved since 1937. The year 1937 was a boom year for the industry. Although the boom conditions of 1937 did not continue in 1938, yet the condition of the industry remained intrinsically healthy and sound. The advent of war has given it a special fillip and the longer the war continues the more assured will become the prospects of the Iron and Steel Industry. The figures of production of 1937-38 relating to pig iron and finished steel show an increase of 500,000 tons and 150,000 tons respectively over those of 1938-39, the last completed year before the war.
CHAPTER VII.

INDIAN TEA INDUSTRY.

The tea industry is a type different from the other industries. It belongs to a group of plantation industries and represents a combination of agriculture and industry. It is an important Empire industry representing at market valuation of about £100,000,000 capital invested and an annual dividend income of close on £10,000,000.¹

For a long time, the China tea was supreme in the European markets and it was in the early thirties of the last century that the Indian Government turned its attention to India as a source of tea supply. Attempts to naturalise China tea in India proved futile and the Assam plant was found to be more suitable. Researches of Captain Jenkins and Lieut. Charlton opened the way for the establishment of tea gardens in Assam. The industry then took rapid strides. In 1850 there was only one estate with 1876 acres and by 1936 the number had risen to 6,334 estates with an area of 632,800 acres. The Chinese tea was gradually ousted from the European markets. Between 1896–97 and 1938–39, exports from India increased 128% while those from China decreased 90%.²

In 1854, the imports of the Indian Tea into United Kingdom were only about 500,000 lbs. against 61,500,000 lbs. from China. In 1936 the position was completely reversed and the corresponding figures were 292,594,000 lbs. (55%) and 6,922,000 lbs. (1%) respectively.³

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1. Pluff and Swayne's — An article on The History of India's Tea Industry in the Jubilee Number of the Capital (1932), p. 106.
3. Ibid., p. 25.
AGRICULTURAL ASPECT OF THE INDIAN TEA INDUSTRY.

Cultivation of tea depends solely on climatic conditions. The distribution of tea gardens is, therefore, confined to a few provinces in India climatically the most suitable for the purpose. Assam naturally occupies the top position so far as the area under, and the production of, tea is concerned. The share in the tea acreage of, and the quantity of tea produced by, the various provinces in 1938 is shown below.¹

<table>
<thead>
<tr>
<th></th>
<th>Area (acres)</th>
<th>% of Total</th>
<th>Tea Produced (1,000 lbs.)</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assam...</td>
<td>439,000</td>
<td>52.7</td>
<td>261,037</td>
<td>57.7</td>
</tr>
<tr>
<td>Bengal..</td>
<td>211,700</td>
<td>25.5</td>
<td>109,666</td>
<td>24.3</td>
</tr>
<tr>
<td>Southern India.</td>
<td>162,100</td>
<td>19.4</td>
<td>75,119</td>
<td>16.7</td>
</tr>
<tr>
<td>Northern India.</td>
<td>16,200</td>
<td>2.0</td>
<td>4,735</td>
<td>1.0</td>
</tr>
<tr>
<td>Bihar...</td>
<td>3,800</td>
<td>.4</td>
<td>1,304</td>
<td>.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>232,300</strong></td>
<td><strong>100.0</strong></td>
<td><strong>451,861</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

The size of the plantation varies from province to province. The average area of the plantation is 392 acres in Assam, 511 acres in Bengal, 363 acres in Travancore and 323 acres in Mysore. Elsewhere it is much smaller, being 40 acres in Madras and 4 acres in the Punjab. The size of the plantation has been determined by the extent of suitable land available and the financial resources of the planters.

The yield of tea per acre also varies from district to district. In 1938, it varied from 60 lbs. per acre in Garhwal (U.P.) to 785 lbs. per acre in Lakhimpur (Assam). These variations are due not so much to the difference in the standard of cultivation as to the difference in climate and the degree of fertility of a particular garden. The average production of tea per acre for the whole of

¹ Indian Tea Statistics 1938 (1940), pp. 1–2.
India was 583 lbs. That the Law of Diminishing Returns is in operation is shown by the fact that whereas the area under tea rose in 1938 from the average of 1920-24 by 17%, the quantity of tea produced increased only by 4.6%. Greater application of scientific methods of cultivation is necessary to check the operation of this Law. The standard of tea cultivation is very poor in Northern India in the Kangra Valley. An enquiry conducted by Mr. Carpenter, Chief Scientific Officer of the Indian Tea Association Calcutta in 1930 revealed that the managing staff of the tea gardens was ignorant of the technique of tea cultivation. It is necessary that the Punjab Government should periodically secure the services of the Scientific advisers from Calcutta and place them at the disposal of Kangra tea growers.

COMMERCIAL ASPECT OF THE INDIAN TEA INDUSTRY.

For an industry which largely thrives on foreign markets and whose internal market remains comparatively undeveloped on account of poverty and prejudice, no problem is more important and difficult of solution than the marketing problem. The development of new markets and the preservation of the existing ones is the very life and soul of the tea industry.

The policy of aggressive economic nationalism pursued by leading countries in recent times resulting in stringent restrictions on imports and the loss of foreign exchange created a difficult situation for the tea industry. Three things were necessary for the rehabilitation of the industry: (1) Control of exports; (2) Control of tea made available for consumption in the home market; and (3) Propaganda to increase the consumption of tea throughout the world. The leaders of the industry in the three principal tea producing countries viz., India, Ceylon and the
Netherlands East Indies put their heads together and an International Agreement was entered into in 1933 for five years. This agreement was renewed in 1938 for a further period of five years. According to this agreement, the exports by each signatory country are limited to a certain percentage (declared yearly) of the standard figure of exports mentioned in the agreement, the export quota for 1938-39 being 92½%.

The Indian export allotment for 1938-39 was 354,499,697 lbs., for 1939-40 it was fixed at 364,080,770 lbs. and for 1940-41 it has been altered to 334,918,624 lbs., being 90% of India's standard export figure.

In order to carry out this agreement, it is essential that the production in the country itself should be properly controlled. For this purpose Indian Tea Licensing Committee was established which assigned every year a quota to each estate. It was only thus that the home market was stabilised, for otherwise it was estimated that a quantity of some 200 million lbs. was liable to be made available to meet a known consumption in India of 80/80 million lbs.¹

To push the sales of tea in foreign markets, International Tea Market Expansion Board financed by the contracting parties was established. As a result of the propaganda carried out by this Board, "tea-mindedness" has definitely increased in several countries and imports into those markets have appreciably gone up.

The United Kingdom is our most important customer and absorbed in 1938-39, 87.3% of our total

¹ Chairman's Speech in the Annual General Meeting of the Indian Tea Association held in 1938.
exports.\(^1\) So far as United Kingdom is concerned, our aim should be to retain this market at this high level, for it is only here and in U.S.A. and Canada, that our better quality tea can find a market.

In U.S.A., coffee is more popular than tea but potentialities of that market are immense. If the whole white population there took one cup of daily, which will still leave them a coffee-drinking people, the total consumption will exceed 197 million lbs. a year.\(^2\) But the quantity of tea actually imported into U.S.A. in 1938-39 was only 81 million lbs. nearly. Therefore in U.S.A. our aim should be, not so much to displace coffee as to widen the market for tea as an additional drink. On account of the publicity campaign carried on in that country, there was a spectacular jump of 13 million lbs. nearly in imports in 1937 and of 15 million lbs. in 1939. The imports for the first quarter of 1940 exceeded the corresponding quarter of 1939 by 10 million lbs. or 40%.\(^3\)

Russia is another tempting market. Russia has been aiming self-sufficiency in tea recently. Area under tea cultivation has been increased from 2,200 acres in 1913 to 94,200 acres in 1936-37 and production increased from 1,600 metric tons in 1932 to 19,695 tons in 1936.\(^4\) Russia imported 172 million lbs. of tea in 1914, whereas the imports in 1938 were only 37

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1. The British Government's decision to impose rationing in tea constitutes a great potential menace to the tea industry, for if it is prolonged, it may permanently reduce consumption of tea in United Kingdom, because the people may come to cultivate a taste for some other beverage.

2. Reports of the Imperial Economic Committee: Eighteenth Report (Tea), 1931, p. 54.


4. Indian Tea Association Report, 1936, p. xii. Production in 1935 was 15.3 million lbs., and area in 1939 was 111,000 acres (Vide Capital, May 11, 1939, p. 696)
million lbs. nearly. There is such a vast difference between the present imports and the pre-war imports of tea into Russia that the estimated production of 46 million lbs. in 1940 cannot fill the gap. If only the pre-war market of Russia is restored, even partially, there will be no necessity of the restriction scheme at all.  

The report of the International Tea Market Expansion Board for 1939 records substantial increase of tea imports by all the principal consuming centres, except Egypt. According to the report of the International Tea Committee for 1938-39, the world absorption of tea totalled 894.1 million lbs. instead of 860.3 million lbs. in the previous year. It shows that efforts made to push the sales of tea in the world have begun to bear fruit.

But the key to the problems of the tea industry will be found in India itself. The teeming millions of India offer almost a limitless market. If the whole population took one cup of tea a day, the home consumption alone will require 580 million lbs. a year, but the production in 1938 was 452 million lbs. The tea consumption in India has been rapidly going up. It was 30 million lbs. in 1919-20, 57 million lbs. in 1928-29, 96 million lbs. in 1938-39, and 102 million lbs. in 1939-40. It has thus been nearly doubling itself in a decade. It is hoped that the efforts of the Indian Tea Market Expansion Board will successfully

1. Under the International Tea Agreement, export quota for 1938-39 was fixed at 9253 of the standard exports which were 508,427,927 lbs. This means a restriction of 60,635,104 lbs., whereas the pre-war Russian imports exceed the present imports by more than double this quantity.
2. Reports of the Imperial Economic Committee: 16th Report (Tea), 1931, p. 56.
fight the double prejudice against tea i.e. prejudice based on the opinions of quacks and pseudo-medical men that tea drinking is injurious to health and secondly the belief that it comes from gardens where Indians are treated worse than slaves. The Board has been able to show that tea is the best all-round beverage and has emphasised its Swadeshi character, its cheapness, its refreshing quality and that it is no longer "the blood of the coolie."

The publicity campaign is financed by the industry itself out of the Tea Cass Fund created in 1903. The rate of the cass has been raised successively from 1/4 pie per lb. in 1903 to Re. 1/6/- per 100 lbs. in 1939. In 1938-39 it was estimated to yield Rs. 42,95,000. For propaganda work in India in 1939-40, Rs. 20 lakhs have been allotted. India's contribution towards expenditure for propaganda abroad is also paid out of this fund. Out of a total expenditure of £370,000 budgeted for 1938-40 by the International Tea Market Expansion Board, India's contribution is £158,000. The publicity campaign consists of opening liquid tea shops, distributing free cups of liquid tea, sale of pice-packets, travelling cinemas, demonstrations and advertisements in the press. In 1937, advertisements appeared in ten languages, through the medium of 134 papers and journals and 22,440,000 messages were issued. In the campaign year 1938-39, 57 million cups were distributed free and 14 million pice-packets were sold. Although no immediate spectacular results can be expected, yet sustained propaganda always pays in the long run.

LABOUR IN THE TEA GARDENS.

Labour in the tea gardens has always presented

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1. A very active canvassing is at present being carried on among the troops at the various theatres of war.
some peculiar problems. The remoteness of tea gardens and their inaccessibility to the outsiders, the notoriously unhealthy climate of the plantations, the unsympathetic and cruel treatment of some early plantation manzgars and competition from coal, jute and oil industries created at one time chronic scarcity of labour. The recruitment of labour was a costly affair. Once having obtained at a great cost and difficulty, the employers would not let it go and no labourer could leave the estate before the expiry of his contract on the pain of being arrested for a criminal breach of law. Nor could he secure alternative employment in another garden, for any estate employing a labourer from another estate had to pay a heavy penalty for enticement. To the labourer, this loss of freedom was sufficiently galling and irritating and the enlightened Indian public opinion has always regarded this type of indentured labour as another form of slavery.

But the conditions of work at the estates have much improved in recent times. Besides getting cash wages, which did not compare, till recently, unfavourably with the wages prevailing in other industries, a labourer in a tea garden gets free housing, free medical aid, maternity benefit, free grazing, free fuel, advances of money without interest and supply of rice at concession rates and free meals for children. Apart from these concessions, there is a delightful contrast between a dingy, smoky and noisy enclosure of a factory in other industrial centres and the open, refreshing and quiet environments of the

1. It used to cost, one time, Rs. 150/- to Rs. 200/- to recruit one labourer. In 1936-37, the cost was Rs. 83/12/- (Akhtar-Emigrant Labour for Assam Tea Gardens (1939), p. 124.)
plantations. To add to the attractions, the whole family is recruited instead of an individual worker and to complete the picture of an ordinary agriculturist family, some land is often allotted for independent cultivation. In 1936, 180,000 acres were held by the garden workers as tenants of garden proprietors. Their conditions were therefore quite enviable. Since the last economic depression, however, wages began falling, so that the wages in 1937-38 were nearly half as compared with 1928-29. It is the restriction scheme which is responsible for this fall in the wages. The labourers being scattered in different estates are not at all organized, whereas the employers are strongly organized. Therefore the former are entirely at the mercy of the latter. Some check to the unrestricted working of the Laws of Supply and Demand seems to be essential.

There were in 1938, 6,324 gardens employing daily, on average, 855,607 persons of which 840,111 were garden labour permanent, 44,376 as outside labour permanent and 55,386 as outside labour temporary.

**Research.**

The Indian tea industry has endeavoured, from comparatively early time, for improvement of both the quality and yield of tea by the application of science. The Indian Tea Association established in 1911 a research station at Tocklai which has been doing a very useful work. A study is there made of the various factors like manuring, plucking and pruning that influence the quality of made tea. In 1937, manufacture was made from 300 bushes in order to select bushes to supply buds and cuttings for vegetative propagation. Experiments have been made with cement and polished aluminium sheets as
fermenting beds to show how cleanliness improves quality. It has also been shown that fermentation carried at a low temperature of 70°F makes for better quality. "The London Advisory Committee of the Indian Tea Association has been of great assistance to the Scientific Department. Recently a commission was appointed under the chairmanship of Prof. F. L. Engledow of Cambridge. The Commission has made useful recommendations for intensifying research and adding to its utility to the industry. What is most urgently required is to establish a much closer contact between the research station and the management of the gardens.

From this point of view research is much better organised in Netherlands East Indies with the result that not only is there a wider dissemination of knowledge but also a generous attitude of the planters towards research. Frequent visits of the scientific experts to the plantations and regular attendance of the planters at the meetings of the research institute can be productive of good results.

Moreover, if the research schemes are to be conducted on a scale commensurate with the requirements of the industry, it is essential, that there should be a much closer cooperation among the tea producing countries. Frequent exchange of visits, specialising of research in different aspects and then sharing the results obtained will be of great benefit to all concerned. It is suggested that the remarkable cooperation that the tea producing countries have shown in the commercial sphere should find its counter-part in the scientific sphere too.

CONCLUSION.

The tea industry seems to have definitely emerged, for the time being at any rate, from the gloom which surrounded it in the early thirties.
The industry has altogether a hopeful future. Tea is becoming an article of daily consumption with many classes of people. The consumption is bound to increase as the publicity campaign gathers momentum. Already, India is producing about 450 million lbs. of tea and enjoys the enviable distinction of being the largest exporter of tea in the world, supplying more than 40% of the world demand for tea. It is hoped that not only will this position be maintained but still improved upon in future.
CHAPTER VIII.

THE INDIAN CEMENT INDUSTRY.

The Indian cement industry is a fascinating study. It is an industry without a past. Though young in year, it has already grown to a full stature. From a manufacturing capacity of 85,000 tons in 1914-16, it increased its capacity to 581,000 tons in less than 10 years in 1924 or 583.5% and the combined capacity of the Associated cement factories and Dalmia factories is at present nearly 2,500,000 tons which means 2917.6% increase in 25 years. In 1914, only 6% of the total Indian demand for cement was satisfied by the Indian factories but in 1937-38, the corresponding figure was 97%. Few industries in India, except perhaps sugar, have shown such a phenomenal growth in so short a time.

But the study of the Indian cement industry is interesting, especially to a student of industrial structure, for another and a more important reason. It presents an extremely interesting experiment in the process of rationalisation of industries.

Besides, cement industry is an important 'key' industry and as such is of great national and economic importance to the country especially from the point of view of national defence. It gives employment to 10,000 workers and is one of the best customers for coal and jute industries.

HISTORY OF THE INDIAN CEMENT INDUSTRY.

The first cement factory in India owed its origin to the enterprise of South Indian Industrial Ltd., Madras. It commenced its operations in 1904. But its methods were not technically efficient and up-to-date. The factory had therefore latterly to close. The real foundation of the industry was laid in 1912-13 when three factories were set up. They
had hardly commenced operations, when the last Great War broke out and their production was placed under government control. The prosperity of these companies tempted other industrialists to enter the field after the war. These factories doubled their capacity and between 1919-22, no less than seven more factories were established. As a consequence, the productive capacity of the industry outstripped demand and an era of cut-throat competition ensued, under which most of the concerns had to suffer.

The Indian Tariff Board appointed to inquire into the claim for protection suggested closer cooperation among the existing companies as the real remedy for the ills of the industry. The industry readily took up this suggestion and a pool under the name of Indian Cement Manufacturer’s Association was formed which succeeded in stabilising the condition of the industry and brought the prices to an economic level.

In 1927 was formed the Concrete Association of India to carry on propaganda, educate the public opinion in the use of cement and offer technical advice. By the free distribution of a large volume of literature on cement this Association has certainly created 'cement-mindedness' and the use of cement has increased manifold.

The formation of the Cement Marketing Co. of India Ltd. in 1930 was the next step forward. It centralised the selling arrangements and controlled output on a quota basis. These arrangements worked quite satisfactorily but some problems still remained to be solved. The working of the quota system revealed its limitations. Most of the factories had to work below capacity and even factories with the least efficient equipment and having highest costs
had also a claim to work. Moreover, it was often necessary to carry cement from a factory into an area which could be better served by another factory located in that area. The system thus militated against rationalized production and economic distribution.

To remove these defects and also to provide for economic expansion and development, a merger was established in 1936 under the name of Associated Cement Companies Ltd. The existing cement companies merged their existence into this new company, which came to control production and distribution of cement throughout the country.

But another event of great importance took place in April, 1937 when Dalmia Cement Co. Ltd. was registered with an authorised capital of Rs. 5 crores for setting up cement works in suitable localities in the country. This resulted in an important in-rasad into the monopoly of the A.C.C.

The cement factories in India now belong to either of these two groups. The A.C.C. group contains 15 factories with an aggregate capacity of about 1,750,000 tons a year and the Dalmia Co. has established in the course of two years five factories in different parts of the country i.e. Karachi, Dalmianagar (Bihar), Dalmiadadi (Jind State), Dandot (Punjab) and Dalmiapuram (Trichinopoly, Madras), all of which are now working. These five factories have a potential capacity of 600,000 tons nearly.

LOCATION OF INDIAN CEMENT FACTORIES.

Among the factors that determine the suitability of the location of the cement works may be mentioned the abundant supplies of raw materials like limestone, clay and gypsum of the correct composition, ample water supply, suitable supply of fuel within a
reasonable distance of the works, close proximity of
the site to large cement-consuming centres and easy
access to the railways feeding those centres and,
lastly, sufficient labour supply.

So far as the two necessary materials viz.,
limestone and clay are concerned, there is hardly
any complaint. The cement works have been established
near big limestone quarries, being assured of the
requisite supplies for a long time to come. Clay
of the right quality and sufficient in quantity is also
available at hand. The works are favourably situated
also with regard to the railway facilities. But
gypsum has in most cases to be brought from long
distances and constitutes an appreciable item in the
costs. More serious defects, however, in the
location of the cement factories, at any rate of those
established up to 1925, lie from the point of view of
source of power and proximity to markets. Nearly
half a ton of coal is required to make a ton of
cement and the cost of power is about 40% of the
total works cost.1 But our cement factories are
situated far from the coal fields. The nearest factory
that of Sona Valley Portland Cement Co. Ltd. is at a
distance of 200 miles, whereas the Indian Cement
Co. 's works are situated at a distance of 1442 miles
and those of Dwaraka Cement Co. Ltd. at a distance of
1450 miles. The Punjab Portland Cement Company
obtains its coal supplies from a distance of 1250
miles.

From the point of view of market relation too,
the location is defective. So far as the internal
market is concerned the position is not unsatisfactory.
The internal markets are easily accessible and transpor

1. Report of the Indian Tariff Board on Cement Industry
costs are not prohibitive. Besides, the internal market is sheltered from foreign competition by its remoteness from the ports. For instance the works of the Panjab Portland Cement Company are situated at a distance of 900 miles from the nearest port, Karachi. The company is thus practically immune from foreign competition. But the fact is that our principal markets for cement lie in the ports. The two Presidency towns of Bombay and Calcutta and their surroundings are said to consume more than half the cement consumed in the country but no cement works were situated up to 1925 within 350 miles of Calcutta and none within 250 miles of Bombay. The Indian Cement works were, therefore, seriously handicapped by their remoteness from the chief consuming centres. There were only two exceptions viz., the works of the Indian Cement Company and those of the Dwarka Cement Company. But their handicap from the point of view of coal supply was the greatest.

The location of the cement factories established recently, however, is more favourable. The Dalmia factory at Karachi and Sind Cement Works, Rohri belonging to A.C.C., have been well placed. Besides serving a part of the Panjab, Sind and Baluchistan, the Karachi factory will feed various parts in and outside India more economically than any inland factory. Water transport is admittedly cheaper, therefore cement can also be transported a long distance on the coastal route, and the Karachi factory has already begun exporting cement. With the increase in the output of Indian cement, the imports of cement in India shrank to a negligible figure and South India

2. In 1914, the imports of cement into India were 150,000 tons, but in 1937-38, they were only 32,000 tons; in 1938-39, the imports further shrank to 22,000 tons. Vide Review of the Trade of India, 1938-39, pp. 114-5.
was the only consumer of imported cement. With the establishment of Dalmia factory at Trichinopoly and A.C.C. factory at Bezwada, the Madras markets too are no longer under the necessity of any imported cement.

One inevitable consequence of the existence of two rival controlling interests in the industry is the establishment of cement factories within the geographical marketing area of the existing factories e.g. Rohri (A.C.C.) and Karachi (Dalmia), Trichinopoly (Dalmia) and Bezwada (A.C.C.), Wah in the Punjab (A.C.C.) and Dendot (Dalmia), Dalma dadri (Dalmia) and Bhupendra works (A.C.C.), and Shahbad (A.C.C.) and Dalmianagar (Dalmia) are located practically to cater for the same markets. This is an unnecessary duplication and will either result in uneconomic rate-war or unused productive capacity. Already a scramble for the markets has begun. Dalmia factory at Karachi is sending cement to areas which could be better served by the existing factories. Cut-throat competition, uneconomic price-cutting and chaos have already appeared in the industry on account of over-production. The cement prices which had been fairly steady for nearly two years, since 1936 began to drop sharply and registered 23% decline in 1938-39. A similar fall was experienced, in anticipation, by A.C.C. shares, the index of which was 100 in October 1937 but 77 by the end of March 1938. In a year or two production is expected still to increase by 50%. In order to avoid the dangers of over-production, an understanding between the A.C.C. Group and the Dalmia Group is urgently called for. 2

2. It has been now reported that an agreement between the A.C.C. and Dalmia Cement Co. has been arrived at.
INDUSTRIAL UNIT AND EQUIPMENT.

Although the cement industry in India was of recent growth and yet each unit in the industry was not of a magnitude which could be called economical. As represented before the Tariff Board in 1924, a cement factory in order to be run economically must have a minimum capacity of 40,000 tons a year.\(^1\) But three factories viz., the South Indian Industrials Ltd., Indian Cement Co. Ltd., and Punjab Portland Cement Co. Ltd., had their capacity below this minimum and were therefore uneconomic.\(^2\)

This situation has, however, been now rectified. The South Indian Industrials Ltd., has gone out of the field and the capacity of Punjab Portland cement works has been doubled. As the result of extensions effected recently, there is not a single cement factory which can be termed uneconomic. On the other hand, the size of the industrial unit in the cement industry is becoming larger and larger. The average capacity was 28,333 tons in 1914, 58,100 tons in 1924, 97,454 tons in 1934 and about one lac tons at the present time.

Some cement works are, however, so big that in actual practice they have to be worked much below their capacity. As a matter of fact, it has been a predominant feature of the Indian cement industry that its productive capacity has nearly always exceeded the actual output. It means the industry has to bear unnecessary interest charges and the costs are higher than they need be.\(^3\) As against the total capacity of 1,465,000 tons in 1936, the output in 1936-37 was only 897,414 tons. The present capacity of the

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1. Indian Tariff Board, Enquiry regarding the grant of protection of Cement Industry, 1924, p. 25.
3. The Indian Cement Co. worked in 1923 to 49% of its capacity and the cost per ton was Rs. 21.46; on the other hand the Ratni Cement Co. and Bundi Portland Cement Co. worked to 88/89% capacity and the cost was Rs. 14 nearly (vide Report of the Indian Tariff Board on Cement Industry, 1925, p. 16).
industry is about 2,500,000 tons, whereas the consumption is estimated to be nearly 1,500,000 tons. It is indeed a national waste to spend large amounts of money on equipment and then to let it lie idle. It will be much better that a chain of smaller units, say of 50,000 ton-capacity be established in the various parts of the country so that the markets can be more economically served and the necessity of despatching such a heavy material to distant parts from the factory is obviated, saving large amounts in Railwayfreights.

**ORGANISATION.**

The structure of the Cement industry was fundamentally altered in August, 1936 with the formation of the merger. Since then and before the entry of the Dalmia group, the cement industry was operating as one unit. A system of bulk purchases of coal, jute bags and other stores was instituted. Quota system was abolished and full advantage was taken of the productive capacities of the works favourably located, while production in less economic centres was restricted. For example Katni factory was kept closed in 1938. Sales were affected through one central sales organisation. The industry thus became strongly organised both the productive and distributive sides and marked improvements were made in the technical and economical aspects of the industry. In no other industry in India unified control existed to such an extent. By rationalising itself the cement industry has given an excellent lead to the other Indian industries and has shown what can be achieved by a concerted action.

Elsewhere also the cement industry is characterised by closely knit combinations. In Great Britain 70 to 90% of the production is controlled by the Associated Portland Cement Manufacturers. In U.S.A. four firms control about 35% of the output; in Norway
and France, the same number controls 100% and 60% of the total output respectively; and in Germany five concerns control about 60% of the output of the whole country.  

The Indian Cement Industry, therefore, only come in line with the conditions prevalent abroad. Large capital expenditure required to set up a cement factory and relatively small number of concerns in existence are some of the causes that are responsible for this tendency to combine in the cement industry.

The appearance of the Dalmia works has no doubt broken this unity of control in the conduct of the industry. Despatch of Dalmia cement to the areas which can be better served by the existing factories has defeated to some extent the object of the merger viz., the supply of cement to the consuming centres from factories most favourably situated to meet that demand. But inasmuch as they have also got a central organisation to regulate the production and distribution of output in their works, there has been no serious breach in the principle of rationalisation as applied to the Indian Cement Industry. The A.C.C. still controls 75% of the total productive capacity of the industry. It will, however, be in the interest of both the country and the industry that some working agreement between the two rival interests is arrived at, so that dangers of ill-planned and ill-considered expansion are avoided.

India has already become self-supporting in cement. The small quantity imported for Southern India will also be shortly stopped as a result of the establishment of A.C.C. factory at Bezwada and the

2. It has been now reported that an agreement between the two interests has been entered into.
extension of their unit at Coimbatore and of the commencement of operations by the Calico Factory at Trichinopoly.

The productive capacity of the industry no doubt exceeds the recent consumption. But consumption of cement is rapidly increasing in India and has almost doubled during the last six years. A sustained publicity campaign is bound further to increase the consumption. The builders and the contractors are getting accustomed to the use of cement. A few years ago the use of cement was confined to heavy structural items of engineering constructions but, thanks to the propaganda carried on by the Concrete Association of India, recently more delicate and every day uses have been found for this interesting material. The cement-crete articles are invading the office, the workshop, the farm and the market place. The making of these articles will lay the foundation of a new cottage industry which, spread throughout the country, can provide employment to the millions of India's unemployed. The use of cement is still confined to the urban areas and a vast market in the interior still lies undeveloped. But possibilities of the expansion of the Indian market lie ahead can be realised from the fact that London alone consumes more cement than what is consumed by the whole of India at the present time. Given a proper cooperation among the various interests, the Indian cement industry has altogether a bright future.

The advent of war ordinarily helps the cement industry but the effects of the present war are not yet visible in this direction. It is probably due to the fact that building trade has almost been suspended on account of higher prices and uncertainties of the war situation; on the other hand manufacturing costs and freights have gone up. The demand for war purposes has not been able
to make up for the slackness in the building trade.

If, however, the war is prolonged and the communications remain intact, the Indian Cement Industry is bound to receive a great stimulus.
CHAPTER IX.

THE INDIAN JUTE INDUSTRY.

The jute industry occupies a position of unique importance in our country. Jute is a monopoly of India and is as such a great national asset. It is of special importance to the province of Bengal where jute is synonymous with wealth. Fifty per cent of the export of merchandise from Calcutta and 20 to 25% from the whole of India is accounted for by jute.

Jute industry too, as a handloom industry, has a very respectable antiquity like the cotton industry, though it has not attracted the same attention. Jute goods were extensively made in Bengal, centuries ago. Dr. Forbes Royle quotes a Calcutta merchant Hanley to show that jute manufacture was almost a universal occupation. "This (jute) industry forms the grand domestic manufacture of all the populous districts of Lower Bengal. It pervades all classes and penetrates every household; men and women and children find occupation therein. Boatmen in their spare moments, husband-men, palanquin carriers, domestic servants, every one in fact, Hindoo or Mohammedan, passed their leisure moments distaff in hand, spinning gunny twists .... There is perhaps no other article so universally diffused over the globe as the Indian gunny bags."

Upto 1867 all the gunny bags exported from India to different parts of the world were made entirely by hand and the exports in 1850–51 were valued at Rs. 21,59,782. Even in 1880–81, of the total value of

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1. Capital worth more than Rs. 18 crores is invested in the jute industry in India. See Agriculture and Animal Husbandry in India, 1937–38 (1940), p. 269.
2. Dr. Forbes Royle - The Fibrous Plants of India (1866), p. 249.
3. Ibid., p. 251.
jute manufactures exported amounting to Rs.
1,13,076,716, the handlooms accounted for Rs.2,69,533.
But soon the competition of the newly established jute
mills began to tell and the jute handloom industry
rapidly declined so that in 1887-88, the handloom-
manufactured articles were valued only at Rs. 89,220
out of the total exports to the value of Rs. 1,15,18,977.
Since then these exports have entirely ceased. Unlike
the cotton handloom industry, the jute handloom
industry could not entrenched itself in the production
of finer specialised articles to meet the onslaught
from the mills. Moreover, not even a fraction of the
sollicitude that has been lavished on the cotton hand-
loom industry by the State and the Indian politician
could be reserved for this industry. Having thus no
place in the new machine age, the jute handloom
industry died "unwept, unhonoured and unsung."

The first jute mill was established in 1835 in
Dundee -- a centre of flax industry in Scotland.
After passing through a period of trial, the jute
mill industry became firmly established there in 1838
and was transplanted in 1854 to the Indian soil, which
proved so congenial that the industry made a progress,
which can truly be described as amazing. The first
mill could produce 8 tons of jute cloth a day but
today the mills in Bengal are producing over 4,000
tons per day. The following statement shows the
progress made by the industry in the present century.1

<table>
<thead>
<tr>
<th>Mills Authorised</th>
<th>Looms Spindles</th>
<th>Daily Jute</th>
<th>Labour</th>
<th>Gunny Bags</th>
<th>Gunny Cloth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital</td>
<td>Less Labour</td>
<td>Manufactures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rs.(Lakhs)</td>
<td>(THOUSANDS)</td>
<td>(Millions)</td>
<td>(Millions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>----------------</td>
<td>-------------</td>
<td>----------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>99-1900</td>
<td>36</td>
<td>680</td>
<td>16.2</td>
<td>206.5</td>
<td>427.2</td>
</tr>
<tr>
<td>1903-04</td>
<td>36</td>
<td>2,305.6</td>
<td>334.6</td>
<td>263.7</td>
<td>1,065.4</td>
</tr>
</tbody>
</table>

there were 105 mills with Rs. 2,488.4 lakhs plus £3,175,000 plus
£3,750,000 authorised capital and Rs. 2,029 lakhs plus £2,525,000
plus £3,750,000 paid up capital; having 66,750 looms and 1,337,858
sindles. consuming 7,356,635 bales of raw jute (400 lbs. each).
RAW MATERIAL

India has a monopoly of raw jute and out of the total world production of 1,600,000 tons in 1938, India accounted for as many as 1,550,000 tons. In India itself the cultivation of jute is confined practically to one corner of the country viz., Bengal. It is an old crop in Bengal but a comparatively new comer in Assam where, however, it tends to increase. The following statement shows the geographical distribution of the crop in 1938.¹

<table>
<thead>
<tr>
<th>Provinces</th>
<th>Acres</th>
<th>% Yield in bales of 400 lbs. each</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bengal</td>
<td>2,475,000</td>
<td>80.7</td>
</tr>
<tr>
<td>Bihar and Orissa</td>
<td>327,000</td>
<td>10.7</td>
</tr>
<tr>
<td>Assam</td>
<td>225,000</td>
<td>7.3</td>
</tr>
<tr>
<td>Cooch Bihar States</td>
<td>39,000</td>
<td>1.3</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3,066,000</td>
<td>100.0</td>
</tr>
</tbody>
</table>

During the year 1938-39, 6,419,000 bales were consumed by the Indian Mills and 693,400 tons valued at Rs. 13,46,41,000 were exported.²

The Jute Restriction Scheme.

One of the thorniest problems that have engaged the serious attention of the Government recently, is the regulation of jute production so as to assure a fair return to the grower. The last world-wide economic depression created a super-abundance of the raw material and the price of a bale of 400 lbs. of jute fell from Rs. 66/- to 44/8/- in 1930, and in


In 1939, the total acreage was 3,119,000 and total production 8,635,000 bales of 400 lbs. each. It may also be mentioned that in 1926, the jute area was just under 4,000,000 acres and the production was estimated at 12,000,000 bales. (See Indian Information, December 15, 1940, p. 454).

February 1931, it further fell to Rs. 28/12/-. Such a fall was unprecedented and the jute grower was faced with a certain ruin. The State had to intervene and decided in 1935 to bring about a reduction in the area sown. The jute restriction scheme has been in operation since then. Feeling that the mere reduction of crop did not meet the end in view, the Bengal Jute Enquiry Committee, appointed recently, recommended the fixing of the minimum prices of various grades of jute at the beginning of each season. Already in August 1939, an ordinance had been promulgated fixing the minimum rates for contracts relating to raw jute futures.

The Government of Bengal has now formally adopted a long-term policy of regulating jute crop and has decided to effect a drastic reduction in the area sown over a series of years. For the ensuing season, the jute acreage will be limited to one-third of the acreage sown in 1940. In order to prevent a temporary collapse of prices in the current season, the Indian Jute Mills Association, as a result of a Jute Conference held in Delhi on December 5, 1940, agreed to recommend to its members a buying programme according to which they would aim at making purchases at agreed prices up to specified amounts by specified dates. If, however, the mills fail to buy the quota agreed upon in the manner and the stages fixed, the Government would make the corresponding purchases and make good the programme.

The success or otherwise of these regulations has been a debatable question. It is pointed out that the minimum rates fixed for jute futures were ineffective, for dealings took place below these minima.  

1. The purchase by Government could not arrest the decline in prices although it resulted in a loss of Rs. 10 lakhs to the Province of Bengal upto the end of August, 1940. (Vide Capital, August 29, 1940, p.323)
The scheme is attacked on the ground that it ignores the cultivation of jute in the neighbouring provinces. The Government's undertaking to purchase the surplus jute in order to maintain the fixed prices is said to be impracticable, for the amount needed will be Rs. 15 crores whereas even the annual revenue of Bengal is not more than Rs. 13½ crores. It is further pointed out that organisation adequate for the purpose does not exist, so that the Government propaganda has been perfunctory in some places and non-effective and non-existent in other places.

There is some element of truth in all this. But it is to be remembered that after a few years' experience governmental machinery will become more effective. It will, however, be much better if propaganda for restriction is accompanied by suggestions for growing alternative crops, for which necessary facilities should be provided. Mr. P. C. Sen, M.Sc., in a booklet on the prospects of sugarcane as an alternative crop has shown that sugarcane in Bengal will give a return of Rs. 64 per acre, while jute and paddy combined yield Rs. 63/- per acre.

LOCATION OF THE JUTE MILLS.

The jute mills in India are ideally located in or near Calcutta. The surrounding areas have a monopoly of the raw material; coal to run the mills is found next door; and the position of Calcutta as an important port makes the foreign markets easily accessible. In few other industries do we find such a favourable combination of factors that influence the location of an industry.

22 (Continued from the previous page foot note)

Further, the prices fixed being arbitrary and so out of line with the market conditions that various subterfuges came to be adopted to effect sales e.g. cash discount even upto Rs. 2/- per muid was offered and 15% excess weight of jute was delivered free against a contract.
As the cultivation of jute is confined to a small part of the country, the industry is naturally centralised. Of 104 mills in 1936-37, Bengal claimed to own 95 or 91.3% representing 95% of the total loomage and 96% of spindles.

**JUTE MANUFACTURES.**

Jute manufactures consist of gunny bags and gunny cloth (sacking and hessian), canvas, twist and yarn and carpets and rugs. Some changes have been noticed in the quality and the lines of production of the Indian jute mills. There was a time when sacking occupied more important position than hessian. But now hessian is more important. The following statement shows the change in the character of production of the principal manufactures during the six years 1933-34 to 1938-39.

<table>
<thead>
<tr>
<th></th>
<th>1933-34</th>
<th>1938-39</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gunny bags: (Number)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Hessian</td>
<td>90,461,562</td>
<td>165,345,645</td>
</tr>
<tr>
<td>(b) Sacking</td>
<td>438,196,667</td>
<td>607,874,832</td>
</tr>
<tr>
<td><strong>Gunny Cloth: (Yards)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(a) Hessian</td>
<td>1,065,548,696</td>
<td>1,701,968,349</td>
</tr>
<tr>
<td>(b) Sacking</td>
<td>53,405,947</td>
<td>71,942,140</td>
</tr>
</tbody>
</table>

It will be seen that whereas the production of hessian bags and cloth has increased 84% and 59% respectively the increase in sacking bags and cloth is only 24.5% and 36.5% respectively.

Now that the efforts are being made abroad to find substitutes for jute as a packing material, it is necessary for the Indian jute mills not merely to be content with producing bags and sacking but to try to produce other specialised products. The jute mills in Europe and America manufacture, out of jute, shirtings, curtains, carpets and rugs. Finest qualities

1. Monthly Statistics of Production of Certain
of jute are mixed with silk or wool and extensively used in finer textile industries. It is time that our mills also turned to these possibilities.

During the last few years, the most important feature of our jute mill industry has been the restrictive working of the mills by reducing the number of hours worked per week and/or sealing a certain percentage of looms and spindles. To put an end to the chaotic conditions of the industry arising out of some mills keeping out of such agreements, an Ordinance issued in 1938 empowered the Government to fix the working hours and to prohibit the replacement of existing looms and the addition of new ones without previous sanction. In January, 1939, however, all the mills in Bengal with one exception and some mills even outside Bengal representing approximately 98% of the loomage of Bengal and 95% of the loomage in India, agreed to sign a working agreement for a period of 5 years for the purpose of regulation of production.

**INDUSTRIAL UNIT AND EQUIPMENT.**

In the beginning, the Indian jute mills were equipped with spinning machinery like the early cotton mills. But in April alone did not pay and looms were then added. Comparing the average figures of 1929-1930 to 1936-37, we find that while the number of mills has increased 133%, the spindles increased 288% and looms 302%.

This incidentally shows that the size of the unit in the jute industry has become bigger. More recently, during 10 years 1923-24 to 1937-38 also, while the number of mills increased by 10.5% the spindles increased 20% and looms 27%. This means that,

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1. For example in a meeting held on 14th August, 1940, the Jute Mill Association decided to enforce a new working hours agreement which entails closing down one week per month commencing with second week in September, 1940 and repeating in October and November.
while more mills are being set up, the old mills are being equipped with more looms and spindles, the addition of looms being greater than that of spindles. The increase in the size of the unit is also shown by the fact that at the close of the last century, a jute mill had on average 444 looms and 10,000 spindles, whereas in 1937-38, the corresponding figures were 635 and 12,742 respectively.

A change has also occurred in the type of looms installed. Upto 1903, the sacking looms exceeded the hessian looms but since then the position has been reversed. In 1889, the proportion of hessian looms was 30%. It has been gradually rising, reaching 51% in 1920, 62% in 1930 and 64% in 1940. During the last decade, therefore, there has not been any appreciable increase.

One noteworthy fact about the equipment of the Indian jute industry is that the productive capacity is much in excess of the requirements. No increase in demand that can be foreseen can absorb this aggregate potential capacity. This means an unnecessary burden on the industry, though such a reserve capacity always stands in good stead in the times of war.

ORGANISATION.

The Indian jute mill industry, has quite a long experience of mutual cooperation for common benefit. Although the Indian jute mill association was formed in 1894, yet several efforts were made before, at frequent intervals, to fix prices and curtail production. Price-fixing agreements were entered into in 1890, 1895 and 1900. But with the exception of one in 1895, most of these agreements were short
of a permanent combine was mooted but the mountain
in labour did not produce even the proverbial mouse.

Till the beginning of the last year, the Indian
Jute Mill Association presented a spectacle of
helplessness. Its membership was not all-inclusive.
The new mills which were more modern and more efficient
were out of the Association and were powerful enough
to flout the majority and nullify any decision that
they might make. In 1932, they were reckoned to own
100 looms and by 1935 the number rose to 500 looms.
Mr. H. H. Burn, when Chairman of the Jute Mill
Association, bitterly complained of the tyranny of
this minority. There was a chaos in the industry
simply because the component parts of the industry
were intent upon self-aggrandisement. There was
enough field for one and all. But the internecine
conflict brought the prices down to an unremunerative
level and the mills lost merely because all would not
cooperate. This was individualism run riot. Moreover,
the members of the Association withdraw their
membership when it suits them. The Birla Mills
resigned in 1937 and the threat of resignation by
the Hoogly mills compelled the Association to go
back on its decision. Such a frail organisation
cannot effectively serve the industry.

In January, 1939, however, all the mills of
Bengal except one and many mills from outside joined
the Association. The rules of the Association have
been amended to create a separate class of membership
who, although they are not full members, agree to
abide by the decision of the Association on matters
like regulation of output so that supply may be
adjusted to demand. A recent instance of cooperation
on the part of the mills may be mentioned. In order
to prevent certain stocks of bengan cloth from
the Indian Jute Mill Association prepared a scheme
to buy up these stocks and a pool, limited to
Rs. 60 lakhs subscribed to by the members of the
Association, was formed for the purpose.

**Efforts to Break Our Monopoly**

While under the opiate of monopoly, the leaders
of our jute industry have been lethargic, the world
outside was fully awake and has been stealing a
march on us. Feverish efforts are being made to
discover suitable substitutes for jute.

In America bags made of five-fold paper have
practically ousted the jute bags from the cement
trade and efforts are now being made to produce
heavier paper bags suitable for packing sugar and
flour.

Among the plants which are being tried to
replace jute, may be mentioned a plant called Malva
growing wild in Cuba which has been found to be
quite promising. The October (1938) issue of the
Bulletin of the Indian Central Jute Committee mentions
that a company has been floated for growing jute in
Ethiopia. A law has been promulgated in Italy
forbidding the sale of pure jute fabrics. Italy
is expected to bring out a new jute substitute called
Jutital. In South Africa, an indigenous plant
brown hemp is considered capable of replacing jute.
A Japanese Chemist has perfected a new type of heavy
paper for the manufacture of bags. Bulletins Nos.
8 and 9 issued by the Indian Central Jute Committee
throw further light on such efforts and refer to the
cultivation of jute in Mexico and Turkey and the
cultivation of substitute fibres in Belgian Congo,
Java, Indo-China and America. In Indo-China, bags
made from coccoanut fibres and sisal fibres are
expected to sell cheaper than jute bags. The Mexican
Jute mills are manufacturing bags from a mixture of 20% jute and 80% Ixtie de Palma fibres. The U.S.A. Government is subsidizing the cotton wrapping for cotton bags. Bulletins No. 10 and 11 mention increased production of jute in Egypt and Formosa. In Bulletin No. 2 for 1939-40, there is a report of experiments conducted at the Argentine Research Station on the production of a fibre from the plant 'Hibiscus Esculentus' which is nothing else but Lady's Finger plant. The Para State of Brazil has entered into a contract with a Japanese firm to grow jute on a commercial scale in Brazil. A new textile company is expected to be started in Venezuela to manufacture bagging from a local fibre.

Such efforts have been made since the last war. But the caravan of our jute industry has marched a on without paying them any heed. It now appears that this movement is assuming dangerous dimensions and can no longer be ignored.

RESEARCH.

Till recently research work in jute was neglected. It was only in 1936 that the Indian Central Jute Committee, recommended by the Royal Commission on Agriculture in 1928, was set up.

The programme of the Indian Central Jute Committee includes a marketing and transport enquiry, agricultural research, seed supply, technological research, improvement of jute forecast, collection and distribution of information and statistics. On its agricultural side, the committee is trying to improve the yield of suitable varieties of jute. It attempts to introduce uniformity in produce and thus increase its value to the trade. A jute agricultural research laboratory has been established.

The Committee has also embarked on a planned
scheme of technological research, which includes spinning trials on the varieties of fibre produced by its agricultural research organisation and investigation in the constitution and measurable properties of jute and finding out a connection between these measurable properties and their spinning qualities. Further, the Committee aims at collecting information from abroad which is then placed at the disposal of the trade, the grower and the local Government to assist these interests to arrange their production to suit demand. It has already collected information about the attempts that are being made in Japan, South Africa, Germany, Italy, and Mexico to find substitutes for jute.

The Committee tries to find new uses for jute. In its bulletin No. 9, it mentions that bitumen-proofed jute cloth is now being used in horticulture as for instance for covering pine-apple plantations in Cuba. Fire-proof jute cloth is used in the construction of buildings and a new material made from jute and resin is used in Austria for manufacturing machine accessories. A cotton-jute fabric has been initiated and developed in India recently, for which quite a big war order has already been received. This will furnish another outlet for jute. In a bulletin issued in November 1940 by the Indian Central Jute Committee, it is pointed out that the possibility of using jute in the shoe industry has attracted the attention of the trade in America. It can be used in the making of a type of footwear, which America used to import from Europe and the supply of which has been now cut off on account of the war. Argentina is also specialising in the making of jute-soled slippers.

The Indian Jute Mill Association also, appointed
a sub-committee in 1936 to consider the question of research. In pursuance of their recommendations, Dr. S. G. Barker was appointed scientific adviser to the Association. A research department was established in 1937 and all the members have agreed to subscribe at the rate of Rs. 3/- per loom for an initial period of three years. An up-to-date research laboratory has been established. The Association's research department is concerned with the improvement and development of finished product, while the Central Jute Committee deals mainly with the raw material. This specialisation will make for efficiency.

It is hoped that this belated attempt at research will guide the industry on the right path and bring it in line with the progressive industry abroad.

CONCLUSION.

Sheltered behind monopoly, the Indian jute industry has been lulled into a false sense of security. Measures of economy and efficiency have been scarcely attempted. No attempt has been made to set up subsidiary industries and even ordinary stores are imported from abroad. The danger of jute substitutes is increasing every day. But the industry has been a house divided against itself. Only a radical reorganisation can put it on a sound and stable footing. Rationalisation by compulsion will be the only proper and permanent solution. The advent of war bringing large orders under which

1. The total value of war supply orders received, in the first year of the war, for sand bags, cotton-jute union canvas and other jute products was over Rs. 9,59,00,000 of which orders valued at about Rs. 3,97,00,000 were completed. Vide Indian Information, December 15, 1940, p. 423.
working hours have been increased and looms have been unsealed, may put off this necessity. But only a fundamental organisational change in the structure of the industry coupled with the application of scientific research to all its branches can restore it to perfect health. The State interference in the jute industry, as is shown by the numerous ordinances issued during the last two years, is already an accomplished fact. It should be carried to its logical conclusion and a compulsory cartelisation brought about.
CHAPTER X.

MANAGEMENT IN INDIAN INDUSTRIES.

THE MANAGING AGENCY SYSTEM—its raison d'être.

A characteristic feature of the management of Indian industries is the prevalence, almost universal, of the Managing Agency System. The managing agency is generally a partnership and sometimes a joint stock concern formed for the purpose of floating a company and to take over its management. It is a curious appendage to the joint stock organisation so as fundamentally to alter its character and working in India.

The growth of the managing agency system is not a mere accident. Its raison d'être lies in the peculiar economic conditions obtaining in India with regard to the availability of managerial talent and financial facilities for industrial development. The shyness of Indian capital and consequent inadequacy of the amounts raised from the investing public, the late development of joint stock banking, the absence of special financial institutions like the issuing houses in England, the lack of competent directorate and the practices of the commercial banks relating to the bankers' advances are some of the causes that have conspired to throw industrial enterprises in India into the arms of the managing agents.

THE SERVICES RENDERED BY THE MANAGING AGENTS.

Besides effecting purchases of materials and machinery, sale of finished goods and insurance of plant, buildings and stock-in-trade on behalf of the concern or concerns they manage, the managing agents perform three principal functions viz., (1) Pioneering; (2) running the routine machinery; and
managing agents hold 25 to 50% of the shares and their share in the deposits is 20%.\(^1\) In the case of old mills at Ahmedabad, 65 to 75% of the total capital outlay is financed by deposits and by funds supplied by the managing agents. And in the case of new mills out of every Rs. 20 lakhs required to finance the block capital, Rs. 5 lakhs is raised by share capital and the balance is found in the form of seven year deposits for Rs. 5 lakhs and one year deposits or the managing agents' own capital for the remaining Rs. 10 lakhs.\(^2\) In Jute, Coal, Sugar and Tea industries, their services in the matter of finance are equally necessary. In Calcutta they have not generally to give personal guarantee as in Bombay, but there, too, they arrange for finance, both block and working, either by raising share capital or with the banks and financiers. Even when guarantee is needed, it is freely given. The managing agents are, in short, promoters, financiers, managers, purchasers and sales agents all rolled in one.

**Remuneration of the Managing Agent.**

For such services as they render to an industrial company, the managing agents have been rewarding themselves in a variety of ways.\(^3\) This remuneration takes the form of a fixed monthly office allowance together with a fixed minimum commission calculated monthly, yearly or half-yearly. Besides this, they also charge a percentage on profits and/or a percentage on sales or production. Sometimes no office allowance is charged and their remuneration consists only of a certain percentage on sales. The office allowance is intended to cover the expenses of the clerical and

1. Supra p. 73.
3. Some restrictions have been imposed by the New.
secretarial establishment and the fixed minimum commission guarantee to them a fixed minimum income irrespective of the financial results of the working of the concern on the ground that a manager must be paid something, profits or no profits, and that few would take the risk of launching a venture unless a minimum income is assured to them.

Of the three commissions viz., on profits, on sales and on production, one on profits is considered to be the best, for it brings about a closer identity between the interests of the shareholders and those of the managing agents and furnishes the necessary stimulus for the successful working of the concern. But a commission on profits is not necessarily beneficial to the shareholders and that on production or sales not necessarily detrimental to them. No doubt commission on production concentrates attention on quantity rather than quality and the commission on sales militates against disposal of the finished goods on remunerative prices, yet in a period of large profits the system of commission on production or sales is advantageous to the shareholders as compared with one on profits. In 1930 in the case of Crown Mills, the commission on the basis of 10% on profits (the usual percentage charged in Bombay) would have come to Rs. 1,47,000 whereas it was only Rs. 39,000 on the production basis. In a year of prosperity, a commission on profits exceeds that on production. But in depression, commission on profits dwindles and may fetch nothing for the managing agents, though their work remains practically as heavy as before. In these circumstances, a commission on sales will assure to them some remuneration. On the whole, a commission

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on profits seems to be the best unless a specialised sales service is necessary or the maintenance of output is of primary importance. Calculations have shown that over a series of years commission on sales is most expensive. In prosperity, commission on profits is expensive but not so over a series of years.

In the different industrial centres, slight variations in the form of remuneration to the managing agents are met with. In Bombay, the remuneration is on the basis of a percentage on gross profits (in Calcutta it is sometimes on net profits) varying from 7½ to 12% but, usually 10% subject to a prescribed minimum varying from Rs. 6,000 to Rs. 1,20,000 a year, whereas at Ahmedabad and in the other up-country mills, the remuneration generally takes the form of a commission on production -/\3 or on sales at 3½%. In Bombay, the office allowance exceeds the actual out-of-pocket expenses incurred in that connection and assumes the form of an additional remuneration, whereas in Ahmedabad generally no office allowance is charged. At Ahmedabad and other up-country centres, there is a provision for a part relinquishment of the commission if it has not been possible to declare a certain minimum dividend varying from 6 to 12%.

There is another special feature of the Ahmedabad managing agency system viz., that the agency commission is shared by a number of partners who help in the initial financing of the concern. Sometimes a very

3. In the present circumstances this minimum should vary from 4 to 6%.
4. This system is now changing. The managing agencies have now been converted into limited companies and shares issued, a proportion of which the holder may sell off.
large portion of the commission is passed on to those partners. It was pointed out to the Indian Tariff Board in 1927, that one managing agent received only 3 rupees in the rupee and the rest went to these commission partners. There is an interesting variation in the case of Kirloskar Bros., who charge 1% on purchase of cotton outside Calcutta and \( \frac{1}{2} \% \) guaranteeing commission on the largest amount borrowed from the Imperial Bank.

In the jute industry, the agreements provide for a certain % on sales, generally 2%, or a yearly sum varying from Rs. 20,000 to Rs. 30,000. Or there is a fixed monthly sum varying from Rs. 500 to Rs. 4,000 and a percentage on sales and/or a percentage on profits 5 to 7\( \frac{1}{2} \% \). In case of a percentage on profits, a minimum sum is guaranteed. Sometimes the monthly sum varies with the number of looms (e.g. Agarpara Co.); sometimes simply \( \frac{1}{2} \% \) or 2% on sales is provided (e.g. Clive Mills and Cheviot Mills). In case of Hastings Mills a maximum is fixed at Rs. 7,50,000 half-yearly.

In the sugar industry, the usual practice is to charge a fixed allowance per month ranging between Rs. 500 to Rs. 3,000, but usually Rs. 1,000, combined with 5 to 7\( \frac{1}{2} \% \) of commission on net profits and in some cases 1 to 2\( \frac{1}{3} \% \) on sales. A very comprehensive form of remuneration is to be found in the case of Messrs. D. Sutherland and Co. charging from \( \frac{1}{2} \)-rambou Sugar Company, Rs. 2,000 per month plus 6% of net profits plus £100 yearly plus 2\% of purchases made in United Kingdom.

The tea companies pay their managing agents a certain percentage of sales usually 2\% and/or a fixed
monthly sum and also sometimes 5% on profits. Some companies also pay a percentage of the purchase price of ten seed, stores and machinery and a certain sum per adult coolie recruited e.g., Medinipur Company.

The Dalmia Cement Company pays its agents Rs. 2,000 monthly plus 10% of net profits.

So far as the iron and steel industry is concerned, the Steel Corporation of Bengal pays Rs. 1500/- monthly plus 6% (rising with dividend up to 8%) of the net profit; the Tata Iron and Steel Company pays 5% (rising up to 9%) of net profits or a minimum of Rs. 50,000. The Indian Iron and Steel Company pays Rs. 17,000 monthly plus 6% of profit plus all office and establishment expenses.

Besides these variations in the terms of the managing agency in the different industries, there are also some other well-marked features of the system in the various centres. In Bombay the duration of the agreement is 30 or 40 years, whereas at Ahmedabad it is perpetual. In Bombay, the managing agent is entitled to compensation on termination of the scale of commission earned during the previous 5 years and in Ahmedabad 5 to 7 times the average annual commission earned in the past 5 to 10 years. But in Calcutta there is no provision for such a compensation. In Bombay and Ahmedabad, but not in Calcutta, the managing agents can assign their duty or interest without the sanction of the directors. In Calcutta, the managing agency firms do not generally advance large sums for initial fixed capital expenditure. They have no intention permanently to retain the shares that they buy when the concern is started; on the other
opportunity offers. They thus act more as intermediaries than entrepreneurs and their functions correspond, to some extent, to those of industrial banks in Germany. Besides, the Calcutta managing agency firms establish subsidiary companies to supply finance e.g., Strand Properties Ltd., is a subsidiary concern to Mackinnon Mackenzie and Co., and Calcutta Discount Company is controlled by Andrew Yule and Co. In these respects the Calcutta managing agency system differs from the system prevalent in other centres.

CRITICISM OF THE MANAGING AGENCY SYSTEM.

The managing agency system provides for the industrial concerns expert, reliable and continuous management and makes numerous economies available by providing a common agency for the sale of goods and purchase of materials and stores on behalf of a number of concerns. But several evils arise, in actual practice from the concentration of control. Subordination of the interests of the shareholders to those of the managing agents, opportunities for fraud and exploitation and the clash between the interests of the various firms under one agency are some of the evils associated with the system. Further, the system has hindered the growth of independent directorate and the development of sound relations between the banking system and industry. Moreover, the system has, incidentally, kept the British and the Indian business communities apart and has stood in the way of a healthy cooperation developing among them. This fact has considerably affected our economic and political structure.

The managing agency system has been subjected to close examination from time to time, especially

recently on the passing of the Indian Companies (Amendment) Act 1936, when the Shareholders' Associations tried to expose the system on the one hand and some Chambers of Commerce defended it on the other. But both sides miss the real point. Whereas the weaker and the less desirable side is inherent in the system, as Mr. Manu Subedar wrote in the Minority Report of the Indian Central Banking Enquiry Committee, it is also a fact that the system has large potentialities for good. The critics have in their minds the weaker specimens of the agents who are either mere fortune-hunters or thoroughly imbecile while the apologists of the system think only of the great business houses to whose initiative, enterprise, ability and financial backing, we owe some of the most successful undertakings. The fact is that the system is the same; it is the personnel that works it makes all the difference.

In the hands of the unscrupulous, inefficient and financially weaker managing agents, the system has led to gross abuses like receiving of secret and illicit commission, embezzlement, deliberately

(Continued from the previous page foot note).


2. Vide circular letter No. 193/1936 of the Bengal Chamber of Commerce (Calcutta) on the Indian Companies Act (Amendment) Bill, 1936 and Memorandum of the Federation of Indian Chamber of Commerce and Industry on the same.
bolstering up the share values and then unloading at the top-level compelling the market "to hold the baby," callous disregard of the interests of the company and in hundred and one other ways exploiting the ignorant and the uninformed shareholder. But the good managing agents, who have zealously guarded their reputation for integrity and fair dealing and whose competence to manage the concern is unquestioned, have made this system yield the best of results. In particular they have made the advantages of integration or horizontal combination available to the various concerns under them. Financial cooperation has been made possible by lending the surplus funds of one concern to another that may be in need.

Various economies, internal and external, have been realised which would not have been otherwise possible. The managing agency combines advantages of a partnership type of business organisation with those of the joint-stock type. The keen self-interest, initiative and virility, resourcefulness and adaptability of the partnership are harnessed to the service of the large-scale organisation of the joint-stock companies.

But the system is attacked on the ground that the agency firms have too many concerns under them. In the words of Bihar and Orissa Banking Enquiry Committee (Vide their report, page 279) "they have got too many irons in the fire and the_Pinaculous fire of their activities, their outlook is too wide and the centre of their operations too far removed and financial scale too large." Andrew Yule and Co. manages 54 concerns i.e. 10 jute companies, 18 tea companies, 14 coal companies, 3 transport companies, 1 sugar and 8 others.¹ Two firms in Bombay, in 1927,

¹. For such details, see Report of the Indian Central Banking Enquiry Committee (Majority Report), Vol.I.
controlled 23 out of 83 mills representing half the paid up capital of the entire Bombay mill industry and about 2/7th of looms and spindles. This in itself, however, need not be disadvantageous. Leverhulmes in England control 264 concerns (Vide Indian Tariff Board Report, Cotton Textile Enquiry, 1927, Vol. II, Ahmedabad millioners' oral evidence, page 432). On the other hand, such an integrated industry can be of immense advantage to all concerned in the group by supplying the various services more efficiently and economically. Obviously no single tea garden can afford to engage the services of expert research workers or an expert sales agency. There is thus nothing wrong in the system itself; what matters is the human factor that operates it.

Further, in judging the system we should not be guided by the letter of the agreements, for in the actual working, the apparent stiffness of the agreements is considerably toned down. The managing agents voluntarily relinquish their commission in hard times. Besides, although the system is hereditary at Ahmedabad, there are not more than half a dozen mills who pay salaries to relatives. They also often resign their agency. The right of assigning interest has not been actually exercised.

Two recent writers seem to be unduly harsh on the managing agents when they give them little credit for financial assistance on the ground that they run no risk as the concern is completely under their

control. As was pointed out in their statement submitted to the Indian Central Banking Enquiry Committee by the Bombay Millowners' Association, Rs. 85 lakhs were lost by the agents in financing the mills under their control in the course of three years and a further loss of Rs. 34 lakhs was expected in respect of loans to mills then in liquidation; Rs. 18.01 lakhs' commission had voluntarily been given up. A certain firm of managing agents made Rs. 9,000 only in commission in four years and had undertaken finance to the extent of one crore of rupees; seventy lakhs was their own money which they lent at 6% where nobody outside would give it at 12%. In view of these facts it is difficult to endorse the view of these writers that the agents run no risk and that they advance money to client concerns for no other purpose than perpetually to tie them down to themselves. By their timely financial aid, the managing agents have in many cases prevented the ruin of industrial concerns and brought them to a profitable stage. For the first nine years, the Paper Pulp Co. showed a debit of nearly Rs. 16 lakhs, but the agents advanced sums varying from Rs. 15 to 25 lakhs. In 1920-21, managing agents of seven Indian Tea Companies advanced Rs. 7 lakhs to pull these concerns out of the slump. A company started in 1918 for the production of aeroplane spirit was on the point of bankruptcy in 1923 but was saved by the advances from the managing agents to the extent of Rs. 17 lakhs. It therefore looks somewhat uncharitably to minimise the services of the managing agents in the field of industrial finance.

Another recent writer gives all praise to the early managing agents thinking that the past was the 'golden age of Indian industrial development' and he is not prepared to admit that the system is successful at present or will be successful in the future. Apart from the fact, that it is not fair to run down the present agency firms wholesale, the standard of business capacity or integrity should be considered to have considerably gone up in recent times as compared with the past when the agents were mostly merchants actuated by purely commercial motives. On this point we have got more authentic testimony: S. N. Runagur who seems to have made more intensive study of the Bombay Cotton Mill industry observes, 'Until about 1868, the agents were almost exclusively drawn from the merchant classes and were ignorant of machinery and the processes of manufacture. They dealt in cotton and yarn belonging to the mills, speculated in shares of the company according to the extent of the profits or losses which they were in a position to ascertain and even modify in the balance sheets to suit the situation, losing contracts were openly passed on to the mills. Cotton was purchased by agents whose honesty was more than doubtful, coal purchased was defective in weight and quality and cotton was manufactured by machinery that was loaded with surreptitious commissions. The factory pay sheet was surcharged with useless or fictitious employees. Every canon of honest trading and manufacturing seemed to have been turned upside down and the whole, when considered together, gave one the impression that the industry existed for no other

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purpose than to support a gigantic system of swindling.\textsuperscript{1} The *Indian Textile Journal* of November, 1899 also wrote about the 'rascality and rank dishonesty with which large sections of our mill industry are saturated.' Surely such businessmen are ill-fitted to usher in 'golden age of industrial development' and few of the present agents can be painted as black as that.

There has also been a tendency to divide the agency firms into Indian and European as representing the bad and the good type.\textsuperscript{2} No doubt the standard of business capacity is undoubtedly higher in an average European, yet it does not follow that the Indian managing agents as a class are inefficient. Among the Indians, there are many business magnates whose presence will do honour to any country in the world.

The present writer is, however, no apologist of the system as it exists today. But it is impossible not to endorse the view of the Indian Industrial Commission that the system has a far greater list of successes to its credit than can be shown by ordinary company management under individual managing directors.\textsuperscript{3} All the same it may at once be conceded that the system is very expensive and the Indian industry can ill afford to bear its cost. Not many managing directors can claim so princely salaries as the minimum amount of commission guaranteed to the agents on the average. The Ahmedabad system according to which the original promoters unload their shares

\textsuperscript{1} Rutnagur - *Bombay Industries: The Cotton Mills*, 1927, pp. 50-51.


but still continue to draw the commission means a very expensive type of underwriting and acts as a drag on the industry. The managing agents certainly absorb too large a proportion of the profit of the industry and thus render shareholding unattractive to an investor who is notoriously shy already. They have sometimes charged excessive commission. According to the Tariff board standard, their commission in 1936 would have come to Rs. 10.85 lakhs but the commission actually charged was Rs. 23.74 lakhs i.e. 118% in excess of the Tariff Board scale.¹

As an industrial concern becomes of a longer standing and well-established, the managing agents' risk is accordingly diminished and the remuneration may in fairness to the shareholders, be scaled down. But in Ahmedabad actually the remuneration was increased and the agents who used to get Rs. 40,000 got about one lakh and a quarter, thrice as much.² Moreover, they should not be entitled to any compensation on termination unless losses have been incurred by them in pioneering.

The banks are, to no small extent, responsible for perpetuating the system by insisting on the personal guarantee of the agents while advancing money to an industrial concern. They do so because they can get it. From banks' own point of view, it is much better to look to the intrinsic strength of the concern rather than to the financial standing of the agents. Therefore the concerns from this costly

appendage and make them more independent of the managing agents in the matter of finance, especially because many managing agents sometimes refuse to avail even of the meagre banking facilities available for fear of losing credit. The managing agency system is open to criticism and there should be still another financial agency to meet the requirements of the industrial firms. It is all the more necessary, as the agents have not been able to cope with the requirements of industry in bad times and their resources will not be sufficient to finance bigger schemes of industrial development, mergers, reconstructions etc. in the future. A company efficiently run and having a strong and competent board should be able to raise the necessary finances independent of the managing agents.

The managing agency system has, however, come to stay and will continue so long as the present commercial and banking structure remains as it is. In several industries, the managing agents have come to play such a dominant role that their presence is indispensable. No amount of legislation can wipe them off. The only remedy against the abuses is an organised public opinion against bad agents, by wide-spread publicity so that their nefarious activities may have little chance to flourish.

The managing agents on their part should introduce internal reforms, apply the principles of scientific management to office organisation, acquire technical knowledge and administrative ability, cultivate sense of responsibility, public

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spirit and scrupulous regard for the concern they manage and should discard get-rich-quick methods. Above all, they should turn to new fields. They should explore new avenues of industrial development and pioneer new concerns. In well established lines of Indian industry, the services of the managing agents are not indispensable. Those of them, who are conservative and are reluctant to launch new ventures and who are content to manage the well-established concerns, really have no place. They have indeed outlived their utility and should make room for paid secretaries or managing directors. The managing agency firms whose financial resources are large, should take a leading part in the formation of special financial institutions where their experience will be of great use.

The managing agency system is also not as universal as is sometimes supposed. Many new concerns are being set up without the managing agency system and this signals the emergence of the new entrepreneur class. In the sugar industry, 50 factories out of a total of 157 are not under the managing agents; in the match industry out of 14 factories tendering evidence before the Indian Tariff Board in 1923, only 4 were under the managing agents; similarly 4 paper and paper pulp companies out of 7 which gave evidence before the Indian Tariff Board in 1924, had no managing agency. It is therefore clear that an industrial concern backed by a strong and influential board of directors and managed by a competent secretary or a director need have no fear and it is time that the spell of the agency system should be cast off. The managing

1. Vide the list given in the Indian Trade Journal, May 30, 1940.
agents should mainly act now either as promoters or investment bankers.

DIRECTORS.

The directors of companies under the managing agents do not and need not play an active part. They are merely figure-heads or so many rubber-stamps and must play a second fiddle to the managing agents to whose favour they owe their position. Out of 175 directors of Bombay cotton mills in 1925, 96 were agency directors.¹ In several cases even the application and allotment money is paid by the managing agents on behalf of the directors.² The managing agents are not only 'King-makers' but they also rule in place of the King. It is the managing agents who decide and the Board of directors simply register those decisions. Mr. J. A. Wadia, a director of 13 cotton mills controlling about 13,000 looms out of a total of 71,000, pointed out in his evidence before the Indian Tariff Board in 1927, that if the directors took active part, they had to go.³ It was also pointed out that in Ahmedabad regular meetings of the Board were seldom called and the directors were only informally consulted.⁴ Nor are the directors competent to take any active part; for out of 175 directors only 11 had received technical training.⁵

Besides some of the directors serve on such a

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large number of boards that it is physically impossible for them to give sufficient time to all the mills. Such a state of affairs can exist only under the system of managing agency. Until the industrial concerns in India are emancipated from the control of the managing agents, the directors will continue to be what they are, viz., puppets.

Some other aspects of the Indian industrial structure may also be noted here. Apart from the fact that almost all the small and middle-sized industries are owned by individual proprietors, many concerns in the major industries also are proprietary in character. Thirty sugar factories are owned by individual proprietors and some is the case with good many match factories.

Another feature is the existence of mixed concerns formed to balance the losses in one by gains from the others. Durga Sugar Works is owned by Delhi Cloth and General Mills Co; Amroha Sugar Factory is owned by Ganesh Flour Mill Co. But the mere outstanding examples are of the British India Corporation formed to acquire the business of three woollen mills, two leather and boot companies and one engineering Co. and that of Rohilla Industries Ltd. which own a sugar factory of 1800 tons of cane-crushing capacity, a cement factory of daily output of 500 tons and a paper factory of daily output of 20 tons.

THE MANAGING AGENTS AND THE NEW COMPANIES ACT.

The New Companies Act which came into force in

1. F. E. Dinshaw was a director in 30 mills with a financial interest amounting to Rs. 12,81,55,715. (For such particulars about the cotton industry, see S. M. Ruttnagur - Bombay Industries, p. 253). Sir F. Sethna served on 11 boards and D. K. Daji on 9; in the Jute Industry, E. L. Watts sits on 21 boards; G. S. Horton in the Tea Industry is a member of 33 boards and E. L. Watts of 24; Thomas Douglas 23 and E. H. Sayers 21. Considering only
January 1937 is described as the Magna Carta of the shareholders. According to the Act, now the managing agents' term and remuneration have to be sanctioned in the general meeting unless they were fixed before the issue of the prospectus and have been mentioned therein. Their term is now fixed for twenty years but it can be renewed before the expiry of the period. However, they can be removed earlier if they are convicted under Indian Penal Code of an offence in relation to the affairs of the company or if they are adjudicated insolvent. The office cannot be changed without the sanction of the shareholders.

Their remuneration is fixed as a percentage on net profits subject to a fixed minimum in case of absence or insufficiency of profits. Any other form of remuneration or any variation of the terms has to be sanctioned by the shareholders. The managing agents cannot under the new Law utilise the funds of one company in another company under their management, nor can they utilise the funds of one company to buy shares and debentures in another company under the same agency. They have also been forbidden to carry on any competitive business on their own account; mortgages of commission and remuneration by the agents is now forbidden; loans to the managing agents are prohibited except on a current account with the consent of the board of directors. They cannot have more than one-third of the directors as their nominees on the board.

The Act is certainly a great improvement on the conditions existing before its passing. It gives the shareholders valuable privileges and safeguards. But it does not give them complete immunity from being exploited by the unscrupulous agents. The managing agents have not been forbidden from doing
any business at all on their own account. They can still act as agents for several similar companies and their interest in all concerns may not be the same. As managing agents of other concerns, they can still act as purchasers of the goods of and sellers to another company and make illicit gain. The act stabilises their position for 20 years if they desire to stay but does not safeguard the interests of the shareholders if they do not. The fact is that no law can safeguard the interests of the individuals when they themselves do not know how to do it. Our shareholders are, ignorant, indifferent and lack corporate spirit and that vigilance which alone can assure success of a democratic institution like the joint-stock organisation.
CHAPTER XI.

INDUSTRIAL FINANCE IN INDIA.

Finance is the life blood of industry. Adequate finance is absolutely necessary to oil the wheels of industrial machine, to ensure its smooth working or to prevent its break-down. A good financial backing is essential if an industrial concern is to make its way in the industrial world. Our industrial backwardness is, in no small measure, due to the paucity of funds available for our industries.

For the study of the problem of industrial finance in India, the industries may be divided into two categories viz., (a) the small-scale and middle-sized industries; and (b) the large-scale or organised industries.

THE FINANCING OF THE SMALL AND MIDDLE-SIZED INDUSTRIES. 1

The small industrialist requires finance for the purchase of raw material, to meet the expenses of production and to bridge the gap between production and final disposal of the goods.

In the rural areas, capital is extremely unorganised and as a matter of fact much capital is not available. The village money-lender is the one oasis of thrift in a vast desert of extravagance. He has a monopoly of supply of capital and charges his own price. The cottage worker, on the other hand, is poor and cannot offer a good security. The funds of the money-lender do not therefore flow towards him except at exorbitant rates. 'Every advantage is taken of debtors' illiteracy and helplessness.' 2 But the requirements of the cottage

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1. A survey of the existing financing agencies for these industries is given in the Reports of the Provincial Banking Enquiry Committee, 1931.
worker which can be called strictly industrial are not large. His appliances are hereditary or at any rate not costly and he generally works to order and on material supplied by the customer and, as remarked by the Madras Banking Enquiry Committee, the finance required for working expenses could be greatly reduced if the workman lived on what he has earned instead of what he hopes to earn.\(^1\)

The case of urban small industries stands on a different footing. Their appliances are modern and costly and their operations are on a larger scale. They produce for the market in anticipation of demand. For them therefore financial aid is indispensable. To supply this aid, a number of middle-men, besides the ordinary sakhars, have appeared on the scene. The mahajan gives him cash loan and if he is a dealer in raw material, he supplies it on credit. ‘The middleman becomes indispensable because of the isolation and poverty of the artisans.’\(^2\) Naturally the rates charged for financial accommodation are high. The Punjab weavers pay from 12% to 37%; the master workman in Madras pays 12\(\frac{1}{2}\)%; in C. P. the artisans have to pay 9 to 15%, and weavers in Bhagalpur silk industry 12\(\frac{1}{2}\)%\(^3\). As the goods are to be sold in the market in open competition, these rates must be pronounced as too high for the industries to bear.

The middle-sized industries like cotton ginning, rice-husking, flour mills, small match factories, printing presses, hosiery factories, soap factories, sports factories, chemical works, tanneries, iron and

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brazas foundries, engineering works etc. are generally started by men of substance who have ample financial resources of their own but even some of them at times need financial assistance. They have largely to depend upon indigenous bankers borrowing usually against personal security at rates which vary from 15 to 36% in Bengal. In the Punjab, in the case of cotton ginning, the middle-man buys the material and pays the price giving five days to the factories to pay, his commission being 8 as. per cent, failing which a promoee has to be executed carrying 9 to 12% interest. The joint stock banks advance loans against block to the extent of 20 to 50% of the estimated value of property and machinery and against stock to the extent of 60 to 70%. The bank also charges for supervision, inspection and correspondence which means further addition to the nominal rate of interest charged. The iron foundries of Ambala and Batala have to pay the Mehsjan 81 to 15% against mortgage or property, 9 to 21% against hundies and 12 to 21% against promeets. Of Rs. 36 lakhs capital invested in the sports industry at Bilkot, two lakhs had been borrowed from the joint stock banks, Rs. 8 lakhs from the Mehsjan and Rs. 16,000 advanced by the Government.1 Lack of sufficient capital is considered to be a great handicap in the hardware industry at Gujranwala and tanning industry at Jullundur.

It is clear therefore that the financial facilities available to the small and middle-sized industries are very meagre and their cost is unduly high. The Sahukar charges a rate which no industry in the world can bear. The terms on which the banks

make advances are regarded as inconvenient and
irksome and rates too high for industrial purposes.
The Bengal Banking Enquiry Committee was of the
opinion that on account of the absence of suitable
financing agencies, industrial concerns in Bengal
were not flourishing. Thus one can safely endorse
the conclusion of the Bombay Banking Enquiry Committee
that small and middle-class industrialists
experience considerable difficulty in obtaining funds
at reasonable rates of interest. The smaller
industries get, at present, hardly any support from
banks, because without technical knowledge of the
industries, banks do not consider it safe to interest
themselves in the financing of such industries. More
than twenty years ago, the Indian Industrial Commission
also reported that difficulties in obtaining loans and
financial assistance were to be met with chiefly in
the case of middle-class industrialists who were unable
to offer the security of approved names or of stock
which could be readily disposed of. There is no
doubt that the small entrepreneur, whether
industrialist or trader is hampered seriously by the
lack of banks and of finance at reasonable rates.

Even now the situation remains the same.

Another source of financial succour for the
small industrialist is the cooperative movement.
The cooperative societies have tried to supplement
the funds supplied to the cottage worker by the money-
lender. But it is generally agreed that the movement
is yet in its infancy and the funds at its disposal

1. Report of the Bengal Banking Enquiry Committee,
   1931, p. 122.
3. Evidence of Central Bank of India - Report of the
   Indian Central Banking Enquiry Committee, 1931,
   p. 178.
are too meagre to render any effective aid to the mass of the cottage workers or to replace the money-lender. The producers' movement in Bombay consists of 14 societies with 596 members, Rs. 24,345 share capital and Rs. 1,51,145 working capital. But they are said to be in a moribund condition. There are 42 Weavers' Societies with 2,418 members and Rs. 2,14,930 working capital. 1 In Madras there are 133 Weavers' Societies with Rs. 2.42 lakhs working capital and the sale of finished products by the societies amounted to Rs. 2.60 lakhs. The Cooperative Department there pays special attention to the cottage industries. 2 In U.P., there are 386 non-agricultural societies with Rs. 58,34,398 as working capital. 3 In Bengal there are 321 Weavers' Societies with 5,818 members, 77 Silk Societies with Rs. 93,945 working capital. 4 Besides, there exist also Producers' Unions having as their members 627 individuals and 460 unions. Their paid-up share capital is Rs. 198,798 and working capital Rs. 11,82,566 and they effected sales amounting to Rs. 735,261. 5 The Punjab has 329 societies with membership of 5,464 and working capital Rs. 6,37,268. They advanced money to the extent of Rs. 2,75,386 and effected sales amounting to Rs. 4,56,011. 6

In recent years, the industrial side of the cooperative movement has been receiving special attention particularly since the Government of India

5. Ibid., pp. 90-91.
sanctioned an annual recurring grant for the development of handloom industry. But the progress is very tardy. The cooperative movement has immense possibilities. There seem to be in fact no limits to the possibilities of cooperative development. In Russia after the Revolution, the cooperative credit unions financed the promotion of new Kustar artels and by 1920 the membership increased to 12 million. It is suggested that a proportion of the proceeds of the Postal Cash Certificates and the Postal Savings Bank deposits should be made available to the cooperative movement under suitable conditions and proper supervision so that it may have ample funds to help the small producer. It is only through cooperation that he can meet the competition of the factory-made goods.

The government in India has also been doing something to afford financial aid to industries. The State-aid-to-Industries Acts have been passed in almost all provinces. But the experience of State loans to industries has not been a happy one, for a large number of loans became frozen and had to be written off. The Government of India lost Rs. 15,581 out of Rs. 25,000 that it had advanced to a soap factory. In Madras, out of a total of Rs. 8 lakhs

1. An account of the manner in which this grant has been spent by the various Provincial Governments in developing cooperative societies and unions can be seen in the Bulletins of Indian Industries and Labour No. 56 (1936), No. 59 (1937), No. 65 (1939), No. 67 (1939) and No. 69 (1940).
4. Governments in other countries have, in recent times, been considerably assisting financially their important industries. See Basu -- Industrial Finance in India, Chapter VIII, p. 241.
advanced to a paper mill, Rs. 4 lakhs had to be written off. In Bihar, Rs. 3 lakhs became irrecoverable. Apart from the fact that the Government grants for the purpose are very small, the conditions under which the loans are granted seem to be too rigorous. In Bihar, only Rs. 6,000 were sanctioned in 1937-38 but no applicant could fulfill the conditions. The Sind Government sanctioned Rs. 20,000 in 1936-37 but there was not a single application. The fact is that the formalities which the State, in the interest of the tax payer, must enforce, affect the credit of the borrower and he gets unwelcome publicity, so that the good borrowers seldom avail of these loans. While the borrowers want to avoid the inquisitorial gaze of the Government officials, the Government officials themselves lack the necessary qualifications to judge an industrial proposition and the creditworthiness of a party. No wonder that the Director of Industries Bihar expressed a desire to be relieved of such heavy banking responsibilities.

The scheme of direct state assistance cannot therefore be considered to hold out any promise. The Government lost and the industries did not gain. The Madras memorandum submitted to the Fifth Industries Conference observes “It cannot be claimed that the period during which it (State-aid-to-Industries Act) has been in force, it has been successful in stimulating industrial development to any appreciable extent and certainly the results have not fulfilled

expectations, while the position of the majority of the concerns to which financial assistance has been rendered, since the Act was brought into force, affords little ground for satisfaction.\(^1\)

It is therefore suggested that the Government should give such assistance either through the agency of the Cooperative Banks or through some other properly constituted private organisation which may be competent to administer these loans. In England, in 1926-27, an aggregate loan of more than £74 million was raised on behalf of private concerns with Government guarantee given free of charge.\(^2\) In Japan, State advances money to the governments of the Prefectures to aid the small industrialists.\(^3\) In India, a suitable machinery must be evolved.

Two interesting experiments have been recently launched. Industrial Credit Syndicate Ltd. was incorporated in Bengal in 1937 with an authorised capital of Rs. 50,00,000 for the purpose of financing small industries. The Government has agreed to pay all administrative expenses and to bear a part of the loss. In U.P., Industrial Credit Corporation with an authorised capital of Rs. 50 lakhs has been established to give long-term loans to small industrialists. The Government took up a part of the share capital and agreed to supplement the profits to enable the Corporation to pay a dividend of 4% and the Government will nominate three out of seven directors. It is too early to judge the result but the experiments will be watched with interest and

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their success will no doubt lead to the establishment of similar institutions in other provinces.

FINANCING OF MODERN LARGE-SCALE INDUSTRY.

The financial requirements of modern large scale industry are indeed very large and the problem they present is even more insistent, for the prosperity of the country and its place in the industrial world depends more on the success and the prosperity of the large-scale industries.

THE FINANCIAL REQUIREMENTS OF LARGE-SCALE INDUSTRIES.

Large amounts of money are needed as a permanent investment by a new concern for the purchase and setting up of plant and machinery, for buying land and the erection of buildings and, by an established concern, for extensions and replacements. This is known as block or capital expenditure. But quite large amounts are also necessary for the purchase of raw material and working it into finished products, for stores, for expenses incidental to marketing, for financing of outstandings in respect of goods supplied and for meeting day-to-day requirements of the concern. This is partly a short term investment but partly of a permanent nature, for the stock of raw materials and of finished and semi-finished goods seldom falls below a certain minimum in a going concern. This is called working capital.

The relative proportions between capital expenditure and working capital depends upon the cost of plant and machinery, land and buildings on the one hand and the cost of raw material, level of wages and rates of interest, the time required for making and marketing of the goods and the quantity of stock considered necessary on the other.

The Tariff Boards that investigated into the
affairs of the various industries from time to time estimated the requirements of these industries with regard to block and working capital. The estimate for a mill in Bombay of 1,000 looms and 40,000 spindles was Rs. 46.12 lakhs and the Ahmedabad estimate for a mill of 600 looms and 25,000 spindles was Rs. 24.75 lakhs. The amount of working capital required corresponds to one-third of the year's works expenditure.\(^1\) For a cement factory Rs. 80 per ton is considered a fair estimate of capitalisation and a 60,000-ton factory which may be taken as the normal unit would cost Rs. 48 lakhs and six months' output is a reasonable measure of working capital required.\(^2\) The fixed capital of Tin Plate Company was Rs. 1,61,00,000 and working capital Rs. 68,06,000.\(^3\) The cost of erecting in 1921-22 works of 126,000 tons of finished steel and 270,000 tons of pig iron capacity was estimated at Rs. 600 lakhs and working capital Rs. 200 lakhs.\(^4\) Probable cost of erecting works in India with a productive capacity of over 600,000 tons of pig iron and over 400,000 tons of finished steel was estimated at Rs. 15 crores and working capital 3½ crores.\(^5\) The estimate for a paper mill producing a little over 6,000 tons of paper and the equivalent quantity of pulp is Rs. 48.19 lakhs.\(^6\) The Indian

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5. Ibid., pages 42 and 46. In the Statutory Enquiry 1926, the estimate was Rs. 12½ crores and Rs. 2.2½ crores respectively (Vide Report, Vol. I, pp. 35-36).
Paper Pulp Company's estimate for a two machine-mill was Rs. 45 lakhs. Cost of 8 months' output is a fair measure of working capital required for a paper mill.\(^1\) The Indian Tariff Board on Paper and Paper Pulp Industry, 1938, considered Rs. 680 per ton a reasonable capitalisation figure and the average value of stocks held worth Rs. 10 lakhs.\(^2\) For a sugar factory of 400-ton capacity, Rs. 10 lakhs is considered necessary for the plant and Rs. 3.5 lakhs for buildings. The working capital required is approximately one-third of the season's output and for a factory crushing 13 lakhs of maunds of cane will be about Rs. 3,80,000.\(^3\) The initial outlay for the tea garden of a minimum size of 500 acres is estimated at Rs. 7.5 lakhs.\(^4\) It costs anything between Rs. 1,500 and Rs. 3,000 per planted acre to open out a tea garden and, as a rule, it does not become a paying proposition for 6 or 7 years.\(^5\) In the Match industry, the estimate for a well-balanced plant of a maximum capacity of 10,000 gross boxes per diem is Rs. 24 lakhs and working capital at about 4 months' output about Rs. 2 lakhs.\(^6\)

How much of these capital requirements should be met by the industry itself by raising share and debenture capital and how much it should rely on banks is a matter on which different opinions have been expressed by competent authorities on industrial finance. Dr. Jeidels, a foreign banking expert, thinks:

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4. Report of the Bengal Banking Enquiry Committee, 193 p. 120.
5. Mr. Roffey’s memorandum submitted to the Assam Banking Enquiry Committee” (Vide Report, p. 104).
that it is not sufficient in itself that an industrial firm should put up its block from its own capital and that having done so the firm can appeal to banks for loans and assistance. Not only block but also normal working capital has to be furnished out of the firm's own initial capital.\(^1\) The Indian Central Banking Enquiry Committee, on the other hand, was of the opinion that generally speaking initial block capital for industrial purposes should be put up by private or public subscription. Such block capital for subsequent improvements and extensions as is not provided out of undivided profits should be supplied by increase of share capital or by issue of debentures; but pending a favourable opportunity for such further issues of share or debenture capital, commercial banks might be expected to supply finance for these purposes in the form of temporary advances provided that adequate security is forthcoming.\(^2\) As for working capital, the Committee was of the opinion that the industrial concerns in India may reasonably expect to have the whole of their working capital supplied by commercial banks if adequate security to the satisfaction of the banks is offered.\(^3\)

Dr. Jeidels' view, although the safest, is too orthodox, rigid and unsympathetic in the present Indian conditions. Even in England working capital is seldom provided by paid-up shares; on the other hand, it is provided by loans of capitalists connected with the industry in question, credits from machine

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3. Ibid., pp. 298-299.
manufacturers, loans from dealers in raw materials and finished goods and entrepreneurs who build, equip and rent out factories. Strict adherence to Dr. Jeideh's view will prevent even many sound concerns from seeing the light of the day, for it is rare that an industrial concern in India has been able to raise sufficient funds to meet its requirements for block and working capital. "We have seldom come across a case in which sufficient funds for working as well as fixed capital have been found in the form of paid-up share capital even where a firm is started under the auspices of the reputed managing agents." The view of the Indian Central Banking Enquiry Committee is more reasonable except that in the absence of the development of suitable financial institutions to act as intermediaries between the industry and the investing public, it will impose an undue strain on the commercial banks, which cannot afford to lock up their funds in financing improvements and extensions, for it may take pretty long for the 'favourable opportunity' to come. They certainly propound a very dangerous principle when they say that the industrial firms can look to the banks for the supply of the whole of the working capital. The sound principle for a new concern is that it must raise in the market sufficient capital to finance its block expenditure. Also it is regarded as essential that such working capital as represents the permanent minimum required should be raised from the sale of securities. For any working funds

required over and above this, the firm may rely upon the commercial banks.

But the sound principle has been honoured more in the breach than in the observance by the promoters of industrial concerns in India with serious consequences to themselves, the investor and the industry. There are not a few cases of industrial concerns landed in serious difficulties shortly after the start. In Bombay, the proportion of share capital and debenture to the total fixed capital is 80% and in Ahmedabad it is 50%.\(^1\) The cotton mill owners raised the initial paid up capital which was not always sufficient to pay for the block and never made any provision for working capital.\(^2\) A paper mill started in Rajahmundry in 1925 spent the whole of the share capital in the fixed capital expenditure and could not start operations as no money was left and none was available.\(^3\) Sometimes tea gardens are started with funds to suffice for 2 to 3 years only and then they have to run to the Marwaris.\(^4\) The gardens owned by the Indian joint stock companies or by the individual proprietors are, as a rule, started with insufficient capital.\(^5\) The share capital raised to finance extensions in the Tata Iron and Steel works in 1921-22 proved inadequate and the financial resources of the company were severely strained. The Government had once to come to the rescue of the Tata Company by giving a loan of Rs. 50 lakhs. The

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Indian Wire and Steel Products Ltd. Jamshedpur failed to increase its output due to the shortage of capital and the Government of Bihar and Orissa had to sanction in 1924 a loan of Re. 5 lakhs to the company. Thus, under-capitalisation of the Indian industrial concerns is almost universal and chronic. In other countries, on the other hand, recently there is a tendency on the part of industrial enterprises to rely more on their own resources and have less recourse to the banks. Integration of industry and speed up of transport have lessened the need for working capital and the growth in the business unit has facilitated direct borrowing in the capital market at lower rates.

In Germany, under the second Four-year Plan, the firms undertaking the formation of new enterprises contributed approximately 30% of the finance required, the capital market by share or bond issues and by taking over loans provided 50%, was provided by the banks and 12% by the State.

How capital is raised.

Industrial concerns, raise capital by the issue of shares -- ordinary shares, preference shares and sometimes deferred or founder's shares, debentures, and deposits. The holders of the ordinary shares are the owners of the company and take the usual risk of a loss if things go wrong and the chance of

2. Under-capitalisation is not, however, always a disadvantage. When money is plentiful and rate of interest low, it is better to borrow in the market than pay 6 or 7% to debenture holders and show a return of 10% on the capital employed.
5. Financing by means of deposits has already been discussed. See Supra p. 73.
gain is the venture turns out to be a success. There has been a commendable tendency in recent years not only to issue shares of lower denomination but also to split shares of higher value into those of lower value. For example out of 28 of sugar companies, established after 1930 cited in the Calcutta Exchange Official Year Book 1940 list, 21 had ordinary shares of Rs. 10/- each or less. In the tea industry, shares are particularly of lower value. Out of 129 companies, in the list, in 84 companies shares are of Rs. 10/- each. Examples of splitting up are East India Tea Co., Rajnagar Tea Co., Grab Tea Co., Lackstooxah Tea Co., Tukvar Tea Co., and Sassenon Spinning and Weaving Co.

The preference shareholders, on the other hand, have a prior claim to a fixed dividend (usually 6 to 7½% cumulative) and to return of capital in the event of liquidation. They therefore run less risk. Preference shares take different forms. Sometimes there is a provision for redemption. Sometimes they are convertible into ordinary shares as in the case of Tezpore Tea Co. There are other slight variations in the type of preference shares issued. In the Auckland Tea Co., they are entitled to 7% cumulative dividend and also to 25% of the surplus divisible profits; in the case of Cawnpore Sugar Works, they only rank for dividend and in all other respects run pari passu with ordinary shareholders; in the Dalmia Cement Co. Ltd., they further participate in profits as the dividend declared increases. The Bowreah Cotton Mills have issued two classes 'A' and 'B', cumulative and non-cumulative the former having a preferential right to dividend and capital, the latter

1. For example in the case of Banarhat Tea Co., Okayte Tea Co., Caraw & Co. (a sugar concern), Star Paper Mills.
to dividends only. The Muir Mills, Cawnpore, give no prior right to repayment of capital and so is the case with the Ganja Manufacturing Co. (a jute concern).

Preference shares are not very popular for, as Hartley Withers remarks, 'many people have a holy horror for preference shares,' as they do not carry with them the right of unlimited gains of the ordinary stock and the security of the bondholder. "Compared with a bond, preferred stock is inferior. Its dividend cannot be collected by legal process against the decision of the board not to pay it." ¹

The deferred shares are taken up by people of the most speculative trend of mind and are usually held by the promoters who seek through this device to appropriate a large share of the profits. Their turn to be paid comes when the preference and ordinary shareholders have been paid, sometimes, after a limit, all the three classes participate. ² Deferred shares lend themselves to speculative activity, which, besides impoverishing many, are a source of embarrassment to the company concerned by creating misunderstandings about its working. Further, a complicated adjustment of rights with the ordinary shareholders is always likely to stand in the way of any scheme of re-organisation. That is why Tata Iron and Steel Company has prepared a scheme for extinguishing their deferred shares and converting them into ordinary shares. The deferred shares are not very common in India.

The debenture holders are the creditors of the

1. Mead - Corporation Finance, 1923, p. 50.
2. e.g., Dalmia Cement Co. Ltd., South Bihar Sugar Mills, Tata Iron & Steel Co., New Victoria (Cotton) Mills, Cawnpore.
Company and are entitled to a fixed rate of interest irrespective of the financial working of the concern. They carry 4% to 7% rate of interest and sometimes as high as 10% e.g. in Darjeel Tea and Timber Co.

The period for which they are issued depends upon the possibility of creating assets out of which they may be redeemed. The period is 10 to 20 years in Tea Companies (40 years in the case of Namburnadi Tea Co.), 7 years (Shree Sitaram Sugar Factory), 15 to 20 years (Ramnuggur Cane and Sugar Co.) in Sugar industry, 10 years in Dalmia Cement Co., 30 years in iron and steel industry, 10 to 20 years in cotton and paper industries. But there is generally a provision for earlier redemption on 3 to 6 months' notice usually at a premium of 3 to 5% and this provision is availed of at times of low rates of interest prevailing in the market.¹

A company whose plant is non-specialised or which has a monopoly, which has built up a good reputation for sound management and has declared a stable rate of dividends, will find its debentures quite popular but they should be issued within proper limits, otherwise in bad times, the company will verge on bankruptcy.² A large amount of outstanding funded obligations impairs the credit of a concern with the banks and the un-wisdom of such an issue is shown by the fact that several of our companies are in arrears with the preference shareholders.³ Interest charges

1. For example Andhra Valley Power Supply Co., Ltd., converted to 3½ %. Also See Tata Hydro-Electric Power Supply Co.

2. The total issue of the debentures should not exceed one-third of the value of the block, such value to be equal to replacement cost less depreciation and an additional sum for risks of obsolescence (Evidence of F. E. Dinshaw, Report of the Indian Central Banking Enquiry Committee, 1931, Vol. 2, p. 465).

3. As for example Ramnuggur Cane and Sugar Co., Muir Mills Cawnpor, New Victoria Cotton Mills.
on debenture and loans alone for 1924 in case of Tin Plate Co. of India amounted to no less than Rs. 15 lakhs and unless sufficient profits are earned, they would keep accumulating. Besides, generous issue of preferred stock by a corporation merely makes the position of the common stock more speculative and actually tends to detract from the financial strength of an enterprise instead of augmenting it.

The best plan is that when a company wants new funds, it should first look to its invested earnings, then to the ordinary shares, and then to preference shares and last of all debentures, both of the latter being made redeemable at the option of the company at any time. In some cases extension of the fixed plant and machinery was wisely provided out of issue of preference shares at a time when the company had established a sound reputation by its unbroken record of dividend payments. The proportion in U.S.A. in 1926 of these three classes of securities was: common stock 67.1%, preferred stock 20.8% and bonds and notes 12.1%.

So far as the Indian industries are concerned, the proportion varies from industry to industry. Out of 60 jute companies, all except 8 have issued preference shares and 16 have issued debentures. Of 129 ten companies, 25 have preference shares and only

1. Evidence regarding the grant of Supplementary Protection to Steel Industry, 1926, p. 121.
6. These have been calculated from Calculated Stock Exchange Official Year-Book for the year April 1924. The data are not exhaustive but the results are fairly dependable.
12 have debentures, out of 40 sugar companies, 9 have issued preference shares and 16 debentures; out of 34 cotton mills, 17 have issued preference and 10 debentures; and of 8 paper mills, 4 have issued debentures and 4 preference shares. The proportion of ordinary shares, preference shares and debentures in the total share and debenture capital respectively is 62%, 30% and 8% in the jute industry, 85%, 10% and 5% in the tea industry, 97%, 2% and 2% in the sugar industry, 70%, 20% and 10% in the cotton industry, 60%, 11% and 29% in the paper industry and 42%, 33% and 19% in iron and steel industry. The Associated Cement Co., Ltd. have no preference shares and their debentures constitute 57% and in the case of Dalmia Cement Company Ltd., preference shares form 28% and debentures 30%. The Tata Iron and Steel Company's preference shares are equal to Rs. 7.68 crores out of a total paid-up capital of Rs. 10½ Crores and they have got a scheme now under consideration for bringing about a better balance between different classes of shares.

It appears that our industries raise the bulk of their share capital in the form of ordinary shares (in the Sugar Industry 97% is so raised). Debentures are not popular with Indian investors and the companies too hesitate in issuing them for fear of losing credit with the banks. They are a costly affair. Higher rates, heavy initial legal and stamp charges and the underwriting commission, heavy transfer fees, limited return, no prospect of capital appreciation and the absence of issue houses, frequent failures of industrial investments, practices of insurers companies to invest in the gilt edge, are some of the causes that limit the market for debentures in India.

1. Sometimes all the debentures have been taken up by an Indian Prince and no market for debentures has consequently developed. For example all the
On the other hand, there is a shift in the policy of the industrial concerns elsewhere towards long-term borrowing even as regards working capital. For example in America before and during the last war, they obtained most of their working capital through short-term borrowing but recently it has been obtained more and more through investment financing. In 1921 their short-term debts accounted for approximately 80% of the total, by 1932 they amounted to only 50%.

The inadequacy of the amounts raised through share and debenture capital for entire block expenditure and normal working capital, compels our industrial concerns to seek the aid of other financing agencies and a perusal of the Banking Enquiry Committee Reports and of the evidence tendered before them gives one the impression that they do not receive any sympathetic treatment from the money market. As regards initial capital, the existing facilities are inadequate. The public prefer to invest their money in Government Securities and Municipal or Trust Loan. The financing of the Cotton Mill Industry has already been studied at some length and we have seen that presence of a large proportion of short-term funds in their permanent investment renders their finances unstable and precarious. Cotton mills obtain working capital from the banks on the cash credit system at rates varying with the bank rate.

(Continued from the previous page foot note).

debentures of Rs. 18 lakhs of the Jiyajee Cotton Mills, Gwalior, have been issued in the name of the Finance Minister of Gwalior Government.
with a fixed minimum on the security of cotton and cotton cloth (margin being 20 to 25% when in bales and 40 to 45% when in process) and in some cases on additional guarantee of the managing agents. The cash credit system has been found defective during depression, for either the amounts are recalled which leads to forced sales accentuating the depression or the millowners are asked to increase the security to keep up the margin and this is not always easy for the millowners to do.

Large initial capital expenditure is necessary in the tea industry for the acquisition of the land, laying out of the garden and construction of the buildings and purchase of machinery. As the whole of this amount cannot be raised through share capital, a refundable admission fee of Rs. 20 to 25 per share is charged on which no interest is paid and the proceeds are spent on the initial expenditure. Some firms of selling agents also render financial assistance e.g. Messrs. Martin and Co. The tea gardens, except those incorporated in England, have to borrow from indigenous bankers and loan offices on personal security or on the mortgage of gardens and the rate is very high. Even the gardens under European management have in some cases to pay 25%. The established gardens can get loans for meeting current requirements against hypothecation of crop from reputed firms of brokers, who act as intermediaries between them and the Imperial Bank and guarantee the loan, charging 1 to 2½% commission. The Tata Iron and Steel Company has a cash credit arrangement with the Imperial Bank and also raises large amounts of unsecured loans on one year’s deposits on its own.

promote or deposit receipts. The Indian Iron and Steel Company had to mortgage more than half of its annual profits for obtaining a debenture loan. The Indian coal firms cannot cope with the almost continuous demand for capital expenditure necessary in the industry of this nature and they have to borrow from the indigenous bankers even at 24 to 30%. Advances are generally taken on the security of the bills. The jute mill industry secures loans from the banks against the security of stocks and hessian and gunny and jute delivery orders and to a small extent against the security of merchandise at 2% above the bank rates. The sugar industry is financed by deposits from selling agents and from the public.

Our Banks and Industry.

Conflicting opinions are held as to the adequacy of the financial facilities available for industry in India.¹ On the whole it appears that our banks are working on very rigid and orthodox lines. Their unwillingness to advance money on personal credit or on the security of block even though un-encumbered and their insistence on full backing of tangible and easily realisable security, detracts, to a very large extent, from their value to the industry. Hypothecation of stocks on which they insist involving, as it does, a visible control by the bank, damages the credit of the party in the market and makes them hesitate to come to the bank for aid. 'Industry in

¹ "When an industrial venture is sound the facilities available are fully equal to the actual requirements" (Evidence of Bengal Chamber of Commerce, Report of the Indian Central Banking Enquiry Committee, 1931, Vol. II, p. 472).

"Even for current requirements, the present facilities are not in our opinion sufficient" (Evidence of Indian Chamber of Commerce Calcutta, Ibid., p. 529). "With the solitary exception of jute industry all important Indian industries complain of and are suffering from lack of banking or financial facilities." (Evidence of Marwari Chamber of Commerce, Ibid., p. 560).
India is face to face with banks run on ideal lines.  

As a matter of fact there is no member of our 
money market whose avowed aim is to help industry. 
The prestige of the Imperial Bank brings it so much 
of the ordinary commercial banking business that its 
hands are otherwise full and there are not many other 
joint stock banks which by experience, financial 
strength and established policy of sound banking, are 
fit to take up the work of finances of industries; 
the foreign exchange banks are busy in their own 
sphere and do not think it their business to lend 
either their name or resources in the aid of Indian 
industries; the indigenous bankers find financing of 
trade and ordinary money-lending too profitable to 
turn to industries; besides, their resources are too 
meagre to be of any substantial aid to the industries. 
'No banking agency in India cultivates industrial 
relations.'

There are two outstanding features of our banks 
viz., large amounts invested in government securities 
and the prominent position held among the banks' 
loans by these given against actual merchandise deposite-
ted either in the banks go-down or in the proper 
legal form with the customer and none of them is 
helpful to industries. The result is that our 
industries have been left in a helpless condition and 
are generally starving of financial aid and whenever 
this aid is forthcoming, the price charged is very 
high, and conditions imposed are irksome and

1. Report of the Indian Central Banking Enquiry 
Committee (Majority Report), 1931, Vol. I, Part II, 
p. 333.  
2. Dr. Jeidels - Memorandum on Industrial Finance, 
Report of the Indian Central Banking Enquiry 
Committee, 1931, Vol. IV, Discussion with Foreign 
Experts, p. 148.  
3. Rates of interest charged to industries for loans 
and advances are said to be generally much higher 
than the industries can bear .... Industries are 
penalised by high rates charged based on seasonal 
stringency, though the rates are not justified by
vexatious. "The sum total of the assistance given by the joint stock banks is an almost negligible quantity." The working of our banks was criticised in scathing terms by Mr. Manu Subedar in the minority report of the Indian Central Banking Enquiry Committee. He observes "The banks have done a disservice to themselves and to industry through an exaggerated adherence to the principle of short-term investment."

In defence of the attitude of the banks, it may be said that they are dealers in third-party funds and it is their primary duty to maintain a condition of maximum liquidity to meet the demand of their depositors majority of whom have left only short-term deposits. They will be violating the canons of sound banking if they create long-term investments on the basis of short-term deposits. Besides, they have not been established on humanitarian grounds or run on philanthropic lines so that they cannot, in fairness, be blamed if they find other investments more remunerative and less risky. Moreover, most of them lack the necessary knowledge and equipment to determine the trustworthiness of an industrial concern. Frequent failures of industrial companies, the floating of so many fraudulent and mushroom concerns, periodic recurrences of depression in one or the other industry, precarious position of Indian industries on account of uncertainties of the fiscal policy and unwillingness of the industrialists to disclose fully and unrestrainedly their true state of affairs and to give the bank the position of a

2. (Continued from the previous page foot note).

the inherent conditions of the industries" (Report of the Indian Central Banking Enquiry Committee, (Majority Report), 1931, Vol. 1, Part I, pp. 272-274


confidential adviser are some of the other factors responsible for keeping the banks and industry apart.

But when all is said, the fact remains that the banks have shown lack of sympathy and an attitude of unconcern towards the development of industries. Certain mills have been refused accommodation on the security of stocks with the usual and even more than usual margins and with agents' guarantee.¹ It is not suggested that they should start industries or manage industrial enterprises. "Nowhere is it the business of the banks to start industries." ² But they can certainly develop a sympathetic attitude and they will find they can help the industries in hundred and one ways without permitting them to be drawn into obligations and investments not compatible with sound banking. With their knowledge they can throw a flood of light on many leaks and losses and frozen assets in a concern and may even be able to suggest a better way of operating it and by maintaining a close touch with the clients' business, they should be able to foresee, forestall and prevent a business failure. "Bankers or financial leaders who have a thorough knowledge of the economic and financial conditions should be able, if they are in a confidential and continuous relationship with industrialists, not only to supplement the information at the disposal of the industrialists themselves but also to give aid of very great value in all financial problems."³ Effective support can be given only if

there is intimate cooperation over years during which the financial interests get an insight into the problems and requirements of the industry in question and the industrial interests learn the value of the support which financial interests can give. They must, therefore, give up this touch-me-not attitude. Before suggestions can be put forward to remove this lacunae in our banking structure, it will be better to see how the problem of industrial finance has been tackled abroad.

**INDUSTRIAL FINANCE IN OTHER COUNTRIES.**

**GERMANY AND THE CONTINENT.**

The German banking system has a particular fascination for Indian students of industrial finance and has often been held up as a suitable model for us to adopt. But the true working of the system, especially of its later developments, has often not been clearly grasped.

There is no doubt that late start in the race of industrial development, scarcity and shyness of capital and the necessity of mobilising it created a situation in which the banks came to play a more active part in the industrial development of Germany, and having taken up the heavy responsibility of aiding in the financing of industrial undertakings they were obliged to maintain a constant touch with them. Special banking institutions were set up to help industry e.g., Schoffhausen's Scher Bank Verein in 1848. Many leading German banks have thus come to acquire vast industrial connections e.g., the Deutsche Bank, Disconto-gesellschaft, Dresden Bank, Darmstädter, and National Banks (known as the "D" Banks) and Commerce-Und-Private Bank.

Provided with large share capital in proportion to the cash transactions, having long-term deposits
and equipped with a wide range of technical knowledge, the German banks are in the best position to help the industries. The entrepreneur spirit predominates in the German banking circles. They initiate industrial enterprises, draw the scheme of financing and find capital for them either by subscribing themselves with the intention of unloading later or more generally by underwriting the shares and issuing them for public subscription. A standing clientele, who constantly seek their advice and guidance, helps them in this. In order to reduce the risks to individual banks, they sometimes join in a komsoortium and make themselves collectively responsible for the issue, each agreeing to accept a certain portion. In order to safeguard their interests, they nominate on the boards of the industries they have helped, their own representatives who approve the important financial operations and endorse annual reports and accounts. "They do not receive information only when the matters are really bad .... they are in a position to make their influence felt considerably before this stage is reached and to initiate and suggest reorganisation, amalgamation and similar remedial measures much earlier than English banks, which can interfere and as a rule are informed when matters have got really serious." "The banks attend an industrial undertaking from its birth to its death."

But the relation between banks and industry is mutual. Since the war, many powerful industrial corporations have also nominated their own representatives on the boards of the banks and have acquired a

1. The Economist of 15.3.30 quoted by S. E. Thomas in British Banks and Finance of Industry, 1931, p. 96.
2. Dr. Jaidigis quoted by P. B. Whale - Joint Stock Banking in Germany, 1930, p. 52.
controlling influence. Special banks have also been created to promote particular industries. The firms in Germany in recent years have also joined together to form Consortia in order to borrow on the collective security of the members.¹

Another thing worth noting is that the association of the banks with industry arises not from an act of direct promotion but from what is called Konto Korrent (current account connection) under which claims arise on both sides which are not settled severally but only a balance is struck periodically.

But it must be clearly understood that direct participation of the banks in industry is very rare even in Germany. They act more as intermediaries between the industries and the investing public than taking up the shares permanently themselves. "They require a responsive capital market and will not take the place of the public. They will not themselves furnish to the industrial company what the investing public is not prepared to take." Lasting participation in other enterprises has not been part of the general policy of German credit banks at any rate in their modern period. The function which they seek to perform in the investment market are only those of middlemen. Even when deliberate industrial participation has occurred, the object has been to extend the bank's influence or acquire new connections but never to enlarge bank dividends by industrial profits.³ The sympathetic attitude is the real element

1. See Guillebaud -- The Economic Recovery of Germany, 1933-38, (London, 1939), p. 120.
in this banking policy. The close association between banks and industry creates an atmosphere of mutual good-will and confidence beneficial to both sides and makes one better acquainted with the other.

The services of German banks to industry are great indeed. "Scarcely a single important company has been founded without the collaboration of a bank."

There is not the slightest doubt that the remarkable recovery of German industry and its efficient organisation after the calamitous depression of 1925-26 would have been impossible but for this close relation and cooperation between the banks and industry.

In recent years, however, German banks in their working are approximating more and more to the English system without at the same time changing their helpful attitude towards industry. The percentage of their current accounts to the total deposits has increased from 37.1 in 1929 to 50.3 in 1938, whereas the percentage of other deposits has decreased from 62.9% in 1929 to 49.7% in 1938 and now they are practically on the same level with the banking deposits in the United Kingdom. Between 1913 and 1927, their participation dropped from 8% to 2% of its share in the total assets. According to the German Credit Act of December 5, 1934, a limit has been imposed on banks' holdings of Speculative and real estate investments and the German banks, therefore, will turn more to commercial banking. German banks depend now to a

greater extent on short-term funds than before and the restrictive credit policy of the Reichbank makes it necessary for the banks now to rely more upon their own resources, so that they hesitate in providing even the working capital to industry. Therefore the German banking system has lost, from the point of view of industry, that structural efficiency which characterised it in the pre-war days.

Another recent fact about industrial finance in Germany is the unsound increase in the proportion of short-term credit. It has been calculated that 40 of the best textile enterprises with a total capital supply of 500 million marks were financed up to as much as 66% by more or less short-term credit.¹

The German banking system is more or less representative of the banking systems prevalent on the Continent. Although the banks do not give credits for long periods, but when money is needed, they arrange for the issue of debenture loan or raising of capital. They balance the short-term deposits with the short-term loans and long-term deposits with the long-term loans. For the raising of initial capital, they help in the formation of syndicates and invest a portion of their funds therein. In Belgium also dearth of capital led to increasing reliance on, and control by, the banks in industrial affairs. The Big Five in Belgium have helped industrial development to a marked extent. The Societe General Belge provides capital for amalgamation and reconstruction and has succeeded in accomplishing concentration of coal mines and electric enterprises. In France, Banques D'affaires

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or Banques de Crédit Mobilier, which are fairly big banks, have industrial finance as their principal aim and have helped industry either by directly participating in the share capital or by placing the bonds of industrial concerns in the market and canvassing for their sale. The working of the principal deposit banks in France in recent times shows an increase in the paid-up capital and reserves and it seems that they have been increasing their resources so that they may be able to assist industries more fully.\(^1\) The connection between banks and industry in Switzerland is also the closest. In Sweden also, there is a very close connection between banks and industry. It has been estimated that practically 70% of the bank credits in Sweden go directly or indirectly to the industries.\(^2\) In Italy, an institution named Societé Financière Italiana was established to take over industrial securities held by the Crediti Italiani. Since 1930, Banco Nazionale de Credito has been specialising in industrial finance. The Institute for Industrial Reconstruction was established to advance long-term finance to industry for the purposes of rationalisation.

It appears that special attention has been paid to industrial finance on the Continent and the immense benefit derived by the industry is beyond doubt. Besides the help given by the banks to industry on the Continent, institutions especially to finance particular industries have also been established. The banker's special knowledge and advice has done much to maintain the elasticity and responsiveness of

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industrial fabric and it has been largely responsible for the rapid rehabilitation of Continental industry since the war.¹

**INDUSTRIAL FINANCE IN JAPAN.**

Like our own country, in Japan also there was a dearth of capital and traditional preference for investment in land. Therefore special efforts had to be made by the Japanese government to mobilise capital and turn it into industrial channels. Industrial Bank of Japan was established in 1902 with government subscription to its share capital to a considerable extent and 5% guarantee of dividend for five years. In order to be able to make long-term advances, it issued debentures to the extent of ten times its share capital. With the approval of the Minister of Finance, it can subscribe to or underwrite shares and can itself issue industrial bonds. It has a committee of experts who periodically visit the factories and keep the bank fully acquainted with the condition of industries that it has helped. Besides assisting and initiating a large number of schemes for industrial reorganisation in post-war years, the Industrial Bank of Japan has shown particular solicitude for small industrialists. It has not hesitated in giving financial aid, without any tangible security, to small industrialists with ability and excellent business record. It also helps them with advice. Central Chest for Industrial Associations was established in 1923 for regulating movement of funds for the Federation of Industrial Associations with nearly 60% capital invested by the Government. It can make loans, without security redeemable within 5 years or by annual instalments within a period not exceeding 30 years. Then, there

are local financial institutions to grant long-term credit at low rates on the security of immovable property. In recent years even ordinary joint stock banks have taken up long-term loans for industrial enterprises. The commercial banks in Japan came to the rescue of several big industrial companies during the industrial crisis of 1930. The Industrial Investigation Association was formed recently by the banks and trust companies in order to facilitate rationalisation of Japanese industries. Fixed deposits in Japan formed in 1937 65.9% of the total deposits and this enables the banks in Japan to help industries better. For the financing of the new enterprises bank deposits account for 63%, Post Office Accounts 13%, Insurance Companies 8%, Trust companies 7% and Cooperative Societies 5%. Some of the most important Japanese banks are controlled by the big business families. Almost every great Japanese firm appears to have established a bank in connection with it. The Japanese industries have also been getting much financial aid from private bankers like the famous houses of Mitsubishi, Mitsui, Sumitomo and Yasuda, for most of these houses are not merely bankers but they are primarily industrialists. Further, the insurance companies in Japan furnish an important source for the supply of

4. Financial control in Japan is centralised in the hands of a few big families; The Mitsui family controls 25% of the paid-up capital, reserves, debentures and investments of all Japanese Companies; Mitsubishi, Yasuda and Sumitomo families together control another 37%, so that the four combined control no less than 62% of Japanese Cos. (See Hubbard - Eastern Industrialisation and its Effects on the East, 1936, p. 69).
long-term finance. Unlike insurance companies in India, which invest most of their surplus funds in government securities (according to the New Insurance Law they must invest 55% of their liabilities to life policy holders in government and government approved securities), the investments and loans on security of Japanese insurance companies have been rapidly increasing in recent years. The Government in Japan has taken a leading part in initiating and controlling its banking system. Under more recent legislation, extensive Government control is being exercised over investment. Since September 1937, the Capital Adjustment Law has been regulating the flow of funds into industry. The savings are to be mobilized and invested as the Government and the industrial experts think best.

INDUSTRIAL FINANCE IN THE UNITED STATES OF AMERICA.

On account of abundance of capital and less need for bank assistance, not so close a connection between banks and industry has developed in U.S.A. as in Germany. But all the same, competition among the banks themselves has made the policy of the banks towards industry very liberal. The banks in America have, therefore actively interested themselves in industrial floatations and have formed subsidiary securities companies for the purpose. These subsidiary companies belong entirely to the banks and have been treated as separate departments so that the business of commercial banking and industrial finance may not get mixed up. In building up and in particular in the merging of most of the great American corporations, some house or bank has played a leading role and relation usually remained a close

and continuous one. There are issuing institutions which sponsor all industrial issues and they generally combine in making the issue. Besides, there is also a new tendency for the commercial banks to enter into long-term investment through the formation of investment trusts. Between 1914 and 1929 investments increased 50.2%, while loans and discounts increased less than half as rapidly.

Between 1922 and 1930 also, there was a spectacular increase in the growth of direct investments in non-government securities and loans on security. The American banks are no longer content in merely furnishing short-term credit. Bank mergers have been formed for the supply of both long- and short-term credits to industry. Under the Federal Reserve Bank Act 1934, the Federal Reserve Banks may discount or buy from any financing institution obligations maturing within five years entered into for the purpose of advances to industrial enterprises and in exceptional circumstances, the Federal Reserve Bank may make direct working capital advances. There can be no doubt that the extraordinary rise of American industry after the war, especially as regards plants in poorly industrialised or purely agricultural districts ... is to a great extent due to the improved organisation of credit, which was in a position to provide American industry not only with more capital but also with credit in more adequate forms, and on more reasonable conditions than before.

INDUSTRIAL FINANCE IN THE UNITED KINGDOM.

The English industry in the past occupied a monopolistic position and the large profits made by the manufacturers found the way into industrial investments. Besides, the scale of production was small and extensions were gradual. There was thus not much need for supplementing entrepreneurial resources by bank credit. The business-men would not brook any prying into their affairs by the banks. The banks also, as a rule, avoided immobilising their resources in long-term credit or in participation in industrial enterprises. The issuing houses rendered the necessary assistance in industrial floatations. "They act as pipe lines between industry and idle resources of the investing public." sound enterprises never starved for funds. The underwriters guaranteed the subscription, the brokers lent their name and the special advertising agencies broadcast the prospectus among selected public, the stock exchanges helped in the realisation of old securities and diversion of funds into new ones. Thus every thing went on all right.

But the last economic depression changed the situation. The British industry was being beaten on all fronts by its more virile rivals like Japan and Germany where industry had passed through a process of reconstruction or rationalisation on which huge amounts had been spent. While the British industry was in agony, the banks accumulated large reserves and maintained comfortably their high dividend rates. This made the business-men furiously to think and a conviction gained ground that something was seriously wrong with their banking and financial

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1. S. E. Thomas -- British Banks and Finance of Industry, 1931, p. 120.
structure. It was said that the English banks were ultra conservative, more willing to grant short term credits against undoubted security and most reluctant to take legitimate risk of helping industry for long-term credit.¹ The Committee on Finance and Industry, 1931 observed, "Our financial machinery is definitely weak in this that it fails to give the investor clear guidance."² Further, "The financial and industrial world should be closely integrated through appropriate organisations."³

There had, therefore, to be a departure from the traditional policy of purely commercial banking and aloofness from industry. The Bank of England came to the help of the Steel Industry and contributed to the plan of the rationalisation of textile industries by its support to the Lancashire Cotton Corporation. This work of industrial reorganisation that the Bank seemed to have taken upon itself was entrusted to a subsidiary company viz., The Securities Management Trust Ltd. formed in 1929. This new company acts as an intermediary between the Bank and any other associations formed for reorganisation of basic industries and to encourage and assist in the process of rationalisation. Another important development was the formation of the Banker's Industrial Development Company in 1930 with a nominal capital of £6,000,000 divided into ordinary shares of £100,000 each and the list of shareholders includes almost every British bank and financial house of first rate importance. It

¹ S. E. Thomas — British Banks and Finance of Industry, 1931, p. 112.
² Vide Report, p. 166.
³ Ibid., p. 165.
represents a welcome financial cooperation on the part of the British banks for the assistance of industry. This company took a leading part in the formation and financing of Lancashire Steel Trust. In March 1934, Credit for Industry Ltd. was formed by United Dominion Trust with the backing of the Bank of England. More companies of this nature then followed. In June 1934 Charter House Industrial Development Company was registered by Charterhouse Investment Trust with £500,000 paid-up capital. In July 1935, was formed the Leadenhall Securities Corporation with a capital of £250,000. There are a few old industrial finance houses in the City like Industrial Finance and Investment Corporation. Other comparatively recent companies concerned with industrial finance are the New Trading Company and the First British-American Corporation. Certain of the large merchant banks like Hambros Bank, Baring Bros. and Co. and Rothschild and Sons also engage in the business of industrial finance. The Industrial Selection Trust and Standard Industrial Trust take a prominent part in the finance of new enterprises.

For affording financial assistance to industries in depressed areas, three funds have been recently created (1) £2 million Hulfeild Trust (2) Special Areas Association Reconstruction Association Ltd. (3) Treasury Fund. Upto September 1938, the three funds together had found £5.7 million of capital for 151 undertakings in the special areas. Efforts are being made to set up local industrial financial organisations. e.g. Scottish Development

1. The Bankers' Industrial Development Company has assisted in the financing of a number of other concerns and the extent of its financial assistance amounted to £19,840,135. (See Besu - Industrial Finance in India, 1939, p. 54).
Financial Trust Ltd. was formed in October 1938 for the assistance and development of struggling small industries in Scotland. The 1st B. & F. Report on the location of industry in Great Britain recommended the establishment of a Development Commission empowered to finance industrial enterprises by direct lending at low rates and also to engage in indirect financing in conjunction with private enterprise. It is also to explore with the bankers and business-men the possibility of creating specialised financial institutions and can subscribe to a portion of capital of any such institution.

In 1931, Industrial Credit Company was established in 1931 with a paid-up capital of £812,500 of which the Government contribution is £504,517. The principal objects of the company are acquisition, underwriting, holding, selling or otherwise dealing with shares, debentures and other securities issued by any company concerned with trade or industry.

Another development in Great Britain is the progress made by the Unit Trust Movement. The first unit trust was established in 1931 and by 1938 their number had risen to 70 and £80,000,000 have been invested in them. 1

Now the English banks are as much interested in their industry as German banks are in theirs. Both have shifted from their original position, the former increasing and the latter decreasing their commitments to industry. Large sums of English banking funds are now invested in industries as overdrafts which are as a matter of fact frozen and defacto long-term loans. The Clearing Banks' assistance to industry was represented by advances.

amounting to £288 million in 1937. Industry and trade received 69% of Midland Bank's advances and Stock Exchanges received only 16%. Assistance was given in the reconstruction of Armstrong and Company Ltd. by cancelling £1,371,386 debenture stock and £450,000 interest due, although the banks in England still stick to their old view of the undesirability of permanently investing their funds in industry but they have realised that within the existing framework much useful aid can be rendered to industry.

The Government in Great Britain has also lent considerable help to some of her industries e.g. British Dye Stuffs and the Coal Sugar industry.

SOME RECENT DEVELOPMENTS IN THE BANKING WORLD.

The banking systems of important countries in the world have shown some well-marked tendencies in recent times and as they have an intimate bearing on industrial finance, it will not be out of place to take a note of them:

1. Increasing proportion of aggregate savings is derived from lower-income classes and they have become a major source of capital formation. These deposits are encouraged by special institutions which pay higher deposit rates, which they can afford to do because they are run on a non-profit basis, their overhead expenses are low, their interest charges are less as their capital is raised through publicly-guaranteed debentures, they have to keep

2. Ibid., p. 142.
a smaller proportion of non-profit earning assets such as cash and they enjoy special exemptions from taxes.

2. There is a growing use of bank deposits as a form of investment which has thrown the burden of financing the industry primarily on the banks. Consequently there is an increasing use of these deposits in making loans to industry and normally short-term credits have, to a large extent, acquired a long-term character. This has widened the economic area subject to sudden liquidation pressure through the possibility of the withdrawal of these deposits.

3. There is a pronounced shift from sight- to time-deposits, greater increase in loans and advances than in discounts and a marked increase in investments except in Germany and France.

4. There is a wide-spread decline in the relative position of the commercial banks during the post-war period.

5. There has been a rapid development of credit institutions belonging to or controlled by governments.

6. The contrast between deposit banking (as in England) and industrial banking (as on the Continent) has been considerably weakened. The banks of the former type have extended their operations over a considerably wider range of activities and have developed much closer relation with the industry than before. The latter type, on the other hand, realising the risks of freezing a large portion of short-term funds, have reduced their holdings in industrial undertakings. They now exercise control and influence over the industrial undertakings through holding companies without themselves
becoming too closely indentified with them.

**WHAT WE NEED.**

This brief survey of industrial finance abroad shows that even in countries in an advanced stage of industrialisation, special institutions are being established to help the industries financially and the policy of the commercial banks even in Anglo-Saxon countries is becoming more sympathetic towards them. Since the last economic depression special attention has been directed by the governments and central banks in other countries to providing financial facilities to industries. But we have seen, on the other hand, what little assistance our industries are receiving from the banks on the whole. Either adequate financial assistance is not forthcoming or it is given almost at a prohibitive price.

But this is not because sufficient capital does not exist in India. Although India is admittedly poor, yet requirements of her industries are also not in the aggregate very large. The paid-up capital of 9,677 registered joint stock companies working in British India at the end of the year 1937-38, was Rs. 2,64,04,77,015 and of 980 companies working in Indian States it was Rs. 15,12,67,735.1 But the Scheduled Banks' cash and balances with the Reserve Bank in 1935-36 (for nine months only) amounted to Rs. 37,79,00,000, the total amount of Postal Cash Certificates outstanding in 1934-35 was Rs. 65,90,00,000 and Postal Savings Bank deposits Rs. 53,30,00,000. Further, the number of the banking

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offices increased from 723 in December 1935 to 1290 in March 1940. ¹ We notice that as soon as an opening for profitable investment occurs, it is  

stone flooded with the flow of capital till it becomes unprofitable e.g. Sugar Industry and Cement industry. In India therefore capital is neither scarce nor why. 'It cannot be said that the number of banking agencies and the amount available for the granting of credits are insufficient.'² The difficulty, thus, does not lie in the paucity of funds.

Our difficulty mainly lies in this that no expert and reliable guidance is available to the average Indian investor who himself can hardly be expected to judge the profitableness and the safety of an investment. The yearly recurrence of so many company failures frightens him all the more.³ A very large percentage of private companies registered every year shows incidentally that the business men do not feel that they can count on a responsive capital market.⁴ Even in Europe owing to

2. Report of the Foreign Banking Experts -- Indian Central Banking Enquiry Committee (Majority Report) 1931, p. 605. The number of banking offices has increased nearly four times since the above was written.
3. New Companies Registered Companies that stopped Business.

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Paid up capital. Rs. (Lakhs)</th>
<th>Paid up capital. Rs. (Lakhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931-32</td>
<td>922</td>
<td>33</td>
<td>256</td>
</tr>
<tr>
<td>1932-33</td>
<td>1,087</td>
<td>31</td>
<td>361</td>
</tr>
<tr>
<td>1933-34</td>
<td>878</td>
<td>88</td>
<td>737</td>
</tr>
<tr>
<td>1934-35</td>
<td>973</td>
<td>52</td>
<td>608</td>
</tr>
</tbody>
</table>

(Compiled from Reports of Joint Stock Companies).

4. Percentage of private companies registered to all public and private registered companies was 28.7% in 1936-37 and 46.5% in 1934-35; and in Bengal and Bombay, the two highly industrialised provinces, the percentage in 1935-36 was 67.7% and 71.6% respectively (Vide Reports on the Administration of Indian Companies Act 1913 and Reports on Joint Stock Companies).
the rapidity of post-war industrial and general economic changes, the public has been less willing to invest directly in the industrial undertakings.¹

'Saving public in Germany prefers to have its money invested for it by financial institutions rather than bear the risks of a direct investment on its own account.'² In India where the industrial structure has not yet taken any definite shape and where ignorance prevails to a much greater extent, the investor cannot be expected to show a better response. As the Madras Banking Enquiry Committee remarked, "it is not a lack of confidence in individual promoters of companies but a lack of resources that prevents enterprises from being able to procure adequate capital by public subscription (vide Report, page 133). The difficulty in raising capital for industries is mainly the measure, even in India, not of the insufficiency or inaccessibility of money but of the opinion which its possessor hold of the industrial propositions put before them."³

It is not only the investors who are in a difficulty, but the industrial companies also do not get any expert financial advice and aid to see even a sound scheme through. We therefore want a solution of the difficulties of both the investors and the entrepreneurs. Having diagnosed the disease, we are now in a position to suggest the remedy.

1. The big commercial banks should develop a sympathetic attitude towards industries, should

cultivate financial transactions with the industrial concerns and should maintain a close and continuous association with them so that they may be able to give timely and proper aid consistent with their own safety. Under certain conditions they can adopt a bolder policy towards helping industries. "In cases where the affairs of a commercial undertaking are intimately known to commercial banks, through long-continued association and when therefore the bank is able to assess the intrinsic merits of the issue adequately, when moreover the firm in question is one enjoying a high degree of reputation with the public, so that the direct risk of lock-up is small, we see no objection to an underwriting operation on the part of the bank, as a conscious and exceptional departure from the generally accepted principle" (viz., refraining from underwriting).\textsuperscript{1} Capital market in India seems to be large enough to give room to a certain activity of banks in the field of industrial financing.\textsuperscript{2} But when the big banks decide to take to industrial financing in addition to their ordinary commercial banking business, the accounts of the two types of business must be kept separate and they should avoid being entangled too much in the industries. "A banker must never forget that he cannot and must not be an industrialist."\textsuperscript{3}

2. A financial organisation is needed to finance

\textsuperscript{1} Report of the Bire Commission of Enquiry into Banking, Currency and Credit (Dublin, 1938), p. 215. Some banks in India do underwrite shares. Dalmia’s shares were so underwritten. The Central Bank has underwritten a number of issues.


the technically advanced entrepreneurs without any private wealth of their own. These big commercial banks should help by taking up share capital and otherwise, in the formation of special institutions, preferably one institution with branches in the chief industrial regions, whose business should be to act as an intermediary between the industry and the investor and as a financial adviser to existing industrial concerns in particular in matters like the amounts and the types of permanent capital to be raised. They should further arrange for the underwriting of and issuing the securities to the investing public, and when necessary, provide temporary finance and even long-term credit in anticipation of this issue. They should particularly assist in all schemes of industrial reconstruction and rationalisation and in the new developments of existing companies or in the establishment of new industrial enterprises. The big commercial banks should cooperate with it in providing this initial temporary advance. Utmost caution will be necessary in the working of these intermediary institutions, for they have to create confidence in their issuing ability. The securities that it backs up must prove to be sound and remunerative.

3. We should also have industrial banks with larger proportion of share and debenture capital, receiving long-term deposits and specialising in industrial finance i.e. underwriting and providing a portion of initial capital for block. Here the Government must lend its helping hand.

1. One of the most useful and interesting experiments in industrial financing in post-war Europe, is the setting up of Industrial Mortgage Banks in a number of countries. Such a bank started in India on an All-India basis with a guarantee from the Central Government will fill an important gap
Provincial Governments should come forward, take up a part of the share and debenture capital and guarantee dividend. The very association of the Government with the scheme will be a guarantee that its share capital and debentures will be readily taken up.\(^1\) A recent writer does not seem to favour such a scheme on the ground that it would lead to political pressure on the industrialists and constant official interference in industrial matters and that it cannot have expert knowledge about industries.\(^2\)

The experience of the Tata Industrial Bank and Peoples' Bank seem to be still haunting the writers on the subject. To my mind these fears are exaggerated. The Peoples' Bank was practically owned and controlled by one man who was primarily an industrialist and a business man. The experience of these two institutions can serve as a danger signal not for the starting of an industrial bank but for avoiding the pitfalls in which they were involved. Besides, the constitution of the bank can be so arranged that the institution is run on strictly business principles, that the direction is left in the hands of competent industrialists and businessmen (of whom now there is no dearth in India) and that it avoids locking up funds largely in a narrow circle. There seems to be no difficulty in this and if the institution is run conservatively and cautiously, its success is certain.

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1. (Continued from the previous page foot note).
   In our system of industrial finance by granting long-term amortisation loans to industry against the mortgage of land, factory building, plant and machinery. It should raise funds, besides its own paid-up capital by issuing its own bonds which will readily sell if the government is at the back of the scheme.

2. Rabagopal Das - Industrial Enterprise in India,
   Reserve Bank's shares were over-subscribed many times.
4. To help the small investor who cannot make a discriminating choice between the different industrial securities offered to him, we should have investment trusts that hold or deal in shares, provide the small investor an opportunity of buying 'blended packets' of a number of securities, thus diversifying his investment and spreading the risk. The investment trust has been defined as 'an agency by which combined funds of numerous participants are invested in a diversity of securities with the object of attaining safety of principal through distribution of risk.' Some institutions of this type have been recently formed in India.

5. The setting up of investment banking institutions will also be of great advantage to the new industrial issues. Here the managing agents can play a useful role. These institutions should investigate and analyse the proposed issue and underwrite if the scheme is a sound one, thus protecting it from the vagaries of the investment market and then arrange for its distribution. To build up and maintain good-will with the investors, they should also be willing to buy back these securities if the investor feels nervous about any holding. The functions of the investment banker have been defined as (1) selective; (2) distributive.


2. (i) Industrial Investment Trust formed in 1933 with authorized capital of Rs. 2,50,00,000 (Rs. 50,00,000 paid-up); (ii) Bird's Investment Ltd. registered in 1935 for investing moneys subscribed by the shareholders in the shares and debentures of companies connected with business and industries in which Bird & Co. and Heiligers & Co. are interested. It also intends to carry on general investment guarantee, underwriting an loan business. (iii) New India Investment Corporation registered in 1936, authorized capital one crore and Rs. 23,32,102 paid-up. (iv) Star Trading and Investment registered in 1937 with Rs. 25 lakhs as authorized capital. (See Calcutta Stock Exchange Official Year Book, 1940).
(3) protective and educative; and (4) advisory. They should furnish to the investors information free of charge, collect dividends for them, negotiate loans on their behalf and execute orders for the purchase, sale and exchange of securities. They should be much more than our ordinary stock exchange brokers. In the words of Hartley Withers, "much can be done by Finance in purging its byways and back streets and arranging some system of sign posts by which the investor can find his way to what he wants."

6. In order to mobilise the small and scattered amounts of capital, special institutions catering for the needs of the small depositor should be created offering him better facilities and terms than he now gets. In Germany it is the small individual savings of the masses which account for a great part of capital accumulation.

7. Special efforts should be made to develop a bill market in India by the liberal provision of discount and rediscount facilities so that the business-men may be able to escape the formalities and inconveniences inherent in the cash credit system and may be able conveniently to arrange current finance. There is a welcome increase in the 'bills purchased and discounted' item in the Reserve Bank Accounts from Rs. one lakh in 1936-37 to Rs. 287 lakhs in 1939-40. But in the case of the Scheduled Banks, the percentage of the bills discounted to total liabilities has gone down from

2.78 in 1933-36 to 2.56 in 1938-40, whereas in the same period the percentage of advances has gone up from 41.79 to 60.35. Now that the central Government has reduced the duty chargeable on usance bills of exchange, it is hoped it will help the development of the bill market.

8. We should have a Bank Act to regulate the business of banking in the country on sound lines, so that the danger of bank failures is minimised. Banking business, most of all, is founded on public confidence and we must put a stop to the growth of unhealthy units. "They spring like mushrooms with grandiose titles and prospectuses and even if not actually fraudulent, they are liable to succumb to the slightest shock thus constituting a source of danger to the whole banking system by engendering a loss of public confidence in banks generally."

Twenty banks established in 1936-39 had Rs. 4½ crores authorised capital, but only Rs. 4 lakhs as paid-up capital. An analysis of 418 non-scheduled banks shows that they have a meagre capital structure, preponderance of time deposits among liabilities and a lack of fluid resources in the form of cash and gilt-edged securities. No wonder that there is a recurring crop of bank failures increasing each year in volume.

4. Banks which have ceased to work.

<table>
<thead>
<tr>
<th>Year</th>
<th>No.</th>
<th>Paid-up Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931-32</td>
<td>27</td>
<td>Rs. 18,69,002.</td>
</tr>
<tr>
<td>1933-34</td>
<td>43</td>
<td>&quot; 3,24,552.</td>
</tr>
<tr>
<td>1934-35</td>
<td>52</td>
<td>&quot; 10,01,056.</td>
</tr>
<tr>
<td>1935-36</td>
<td>87</td>
<td>&quot; 53,27,236.</td>
</tr>
</tbody>
</table>

These bank failures undoubtedly damage the banking fabric of the country but we need not be unduly alarmed. In America between 1929-1933 there were 10,000 banking failures (See Baxter-Twilight of Capitalism).
It is idle to expect a rapid and satisfactory industrial development without a properly organised system of industrial finance. Our industries languish for want of finance while vast amounts of capital lie dormant and those that have so far been mobilised are not available to them. If the steps enumerated above are taken, it may be hoped that a big stumbling block in the path of industrial development will be removed.
CHAPTER XII.

PLANS AND POLICIES.

Our examination of the structure of some of the important industries has revealed the weak spots in our industrial structure. It has been shown that improvements are not only possible but necessary and means and methods to effect those improvements in each case have also been indicated.

Present Industrial Position

We entered into the industrial race a little less than a century ago and yet there is little indication of the increased tempo of industrialisation. Although we have become almost self-sufficient in cement and sugar and have shown a fairly rapid progress in other industries, yet it should not blind us to the fact that industrially we are still very backward. Only 11% of our population lives in towns or industrial centres and the number of persons employed in organised industries is a little over 1% of the total working population.

Industrialisation in our country has been also accompanied by progressive ruralisation as is shown by the increasingly large number of people depending upon agriculture revealed at the time of each successive census. An analysis of the imports and exports for 1938-39 shows that the value of the raw materials and semi-manufactured goods exported is nearly 63% of the total value of exports; and the exports of manufactured goods is only 37%. On the side of imports, the value of manufactured goods is nearly 70% of the total value of imports, while that of the raw materials and semi-manufactured goods 30%. Thus industrialisation, though rapid in certain directions, has not yet altered the position of this country of being largely an exporter of raw materials and importer of manufactured goods.
manufactured goods. Industrial development in India is not at all commensurate with the size of the country, its huge population and vast and varied natural resources. Economically we are far behind the civilised world. "Thus millions of people in India year after year worship with devotion Laxmi or goddess of wealth, Saraswati or goddess of learning and Durga or goddess of power, yet India is today, the most indigent, the most illiterate and most helpless country on earth." To help us out of this morass and effect our economic elevation, some drastic steps will be necessary.

Before we discuss the means and methods to effect this economic elevation, it will be necessary to have an idea as to how we want to shape our industrial structure. It should be remembered that we do not want to specialise in the production of raw materials only but we also want to establish extensive manufacturing industries for the economic salvation of India lies in restoring a proper balance between agriculture and industry.

WE WANT SMALL INDUSTRIES TOO.

Setting up of mammoth factories in big cities will not solve our problem. We must also look to our villages and effect some decentralization in our industrial structure. Tradition, economic conditions and social structure all make India eminently suitable for the development of small healthy industrial units.

It is wrong to assume that the rule -- the bigger whale swallowing the smaller ones -- also applies to industries. The small industries are not destined to

1. Rajani Kanta Das -- The Industrial Efficiency of India (1930), p. 72.
disappear, for survival in this sphere does not depend on size alone. Prince Kropotkin remarks "Only superficial and bookish acquaintance with industry could permit the economists to assert that law (necesary disappearance of small industry) for half a century without attempting to prove it .......The petty trades are not killed and cannot be killed; like 'Protea' they ever change their aspect."

In recent times, the development of cheap electric power, the improvement in the means of communication and transportation, the rising of rents in urban areas and increase in local taxation, improvements in the technique of industries, the increasing importance of proximity to markets and distribution centres — all have helped the revival of the small firm away from the big industrial centres. The establishment of large scale enterprises itself has provided them with some work of subsidiary and supplementary nature; cooperation has also helped the small producer and the wide diffusion of technical knowledge has removed any special advantage that the big business sometimes enjoyed. There is little reason therefore that the small business should die out solely on the score of its small size. In India, the peculiar position of the cottage industries in our economic and social system, the Swadeshi movement creating new demand for the indigenous products, the capacity of some handicrafts to meet special needs, and the reorganisation of others by the use of modern scientific methods, inventions and market facilities.

1. Quoted by Sahaarbuddha in a paper read in the Industrial Conference held in 1912.
as well as the sympathetic policy of the Central and Provincial Governments in recent times are some of the factors which are responsible for the survival of the small industries. There are innumerable small factories or workshops dotted all over the country and in Calcutta alone their number is estimated to be more than 10,000. 1

Even in the countries which are the classic lands of big businesses, small industries occupy a very important position. In Japan, medieval and modern forms jostle each other in her big centres. Small-scale business is still typical of Japanese economic life. "In practically every farmer's cottage, there may be seen small handlooms in which the womenfolk weave the narrow cotton fabrics from which the Japanese garments are made." 2 53% of Japan's industrial population still gains its livelihood in small undertakings employing fewer than five workmen each and 58% in those employing fewer than 10. 3 About 65% of the total volume of exports comprise the manufactures of medium and small industrial enterprises. 4 Between 1920 and 1927, there was an increase of 20% in the number of looms in operation in small establishments. 5 Silk industry in Japan is migrating to the country side. There is also a movement in U.S.A. to take the factories

out of the large cities and the cotton industry there, is being increasingly decentralised. Henry Ford has established plants in the rural areas for the manufacture of parts of cars. In Germany, too, it is desired to replace urban agglomerations by a decentralised type of industry and to create small industrial towns throughout the country side.¹

Special efforts were made by Governments in Europe to encourage small industries.² The Government of Austria spent large sums on the development of small handicrafts. Holland developed the industry of hand-painting the cloth; the Government of Rumania built up a successful and prosperous handloom industry of over 12,000 looms; the Government of Hungry supplied the craftsmen between 1899 and 1900 machinery valued at £7,625,567 crowns. Similar efforts were made in Germany and Italy.

In our own country, conditions for the development of small industries are specially favourable. Large factories require large capital which we lack. Large factories use labour-saving devices but we have a large manpower which is waiting for employment. Small and scattered land holdings in India do not provide a whole time job to our agricultural population and they urgently need some supplementary source of income where they can utilise their spare time. Our policy, therefore, should be to prevent piling up of factories in the cities already congested and to spread small and medium-sized units throughout the country side and

² See a paper read in the Industrial Conference held in 1912 by R. K. Mukerjee.
secondly to revitalise and reorganise our small industries which have been dislodged from their erstwhile proud position and which are now dragging their precarious existence.

The difficulties that the small industries experience arise from lack of finance, high cost of production, little margin of profit, indebtedness, conservatism and illiteracy of the craftsmen, low quality of and less variety in, his output, specially lack of finish. They lack organisation and the marketing mechanism wholly works against the small producer. A comprehensive scheme attacking the problem on all fronts, economic and social, is essential. The salvation of the craftsman lies in cooperation, which can lift him economically, morally and educationally. Besides providing him the necessary financial assistance and aid in marketing, his technical efficiency must be so raised that he is always ahead of the machine and not behind hand with it, as he mostly is now, to his utter ruin and embarrassment. The Committee appointed by the U.K. Government in 1934 made very useful recommendations for the development of cottage industries. It recommended, inter alia, the establishment of a Marketing and Finance Company, with Government assistance, with an initial capital of Rs. 5 lakhs and if established such companies can go a long way in meeting the difficulties of the cottage worker. It is suggested that early steps should be taken by the Provincial Governments to create such institutions.

THE PROBLEM OF THE LARGE SCALE INDUSTRIES.

The establishment and rejuvenation of small

1. The Industrial workers should be organised into guilds. Industrial guilds have already been set up by Kashmir Government.
industries only will not help India to occupy that place in the industrial world to which she is entitled. Small industries have their limitations. They are excellent means of giving employment to the under-employed and unemployed people and of preserving some characteristic products of the country. But they can only be regarded as a necessary, though very valuable, supplement to modern large scale enterprise. It will be a little too much to expect the small industrialist to compete successfully with highly centralised foreign trusts and cartels with their gigantic competitive strength. The most successful industrial companies which dominate the national and world markets are those which conduct their business on the largest scale. The German and American combines can easily undersell their rivals. Even in England the most successful industries are in the hands of big combines. Therefore we must build up a modern and efficient large scale industry.

**Scientific Management.**

For a rapid and solid industrial advance application of science to the management of each industrial unit is essential. America is the original home of scientific management, for a chronic shortage of labour in that country supplied the necessary stimulus for this. Scientific management means finding and applying the best way of doing particular jobs eliminating all unnecessary efforts and reducing workers' fatigue to the minimum. It thus involves time study, motion study and fatigue study.

But the term scientific management now-a-days is given a much wider interpretation and extended application than what Taylor originally intended.
There is not a single aspect of the factory which does not lend itself to scientific treatment. Principles of scientific management are now applied to the location and organisation of factories and offices, to the selection, training and organisation of the personnel and the fixation of responsibility, to the utilisation of the best possible methods and equipment so as to achieve the maximum possible efficiency of every part of the industrial machine at the lowest cost possible. All conflicts and clashes must be intelligently anticipated and completely harmonised.

There is no doubt that American industry benefited immensely from the application of scientific management and although the British labour is far opposed to scientific management, the factory work in all advanced countries is now organised on most scientific lines. But most of these things are news to our factory owners. They are working more by the rule of thumb than on any scientific line. We must discard the method of error and trial and overhaul our methods and bring each industrial unit to the highest pitch of efficiency, if we wish to enter the industrial race with any seriousness.

RATIONALISATION.

Few words in Economic terminology have exercised the minds of the economists and statesmen in recent times so much as the word rationalisation, yet not many understand its true implications. The word rationalisation is interpreted differently by different people. But it is generally agreed that...

1. A number of interesting definitions of the term rationalisation have been given by Urwick in his 'The Meaning of Rationalisation' (London, 1929), Appendix D, pp. 154-156.
it involves amalgamation, integration, modernization with the object of eliminating waste of every type arising out of bad division of labour, employing larger labour force than is necessary, and of using obsolete machinery or keeping the machinery idle. Elimination of waste either of labour, material or of mechanical energy brings down the costs. Costs are also lowered by concentration of production in the most suitable works thus reducing the short-time working to the lowest possible limit. In a rationalised industry, the most efficient and best located works are extended and the uneconomical ones are closed down. Rationalisation further aims at regulating the output so that the demand and supply are properly adjusted and price level is kept fairly stable.

Rationalisation does not merely mean trustification or formation of cartels; it does not even mean only modernisation of plant in any single factory. In the first place it means financial adjustments, reconditioning of equipment and improvement of management in the individual enterprises; and secondly it aims at introducing a collective control in the entire industry to tackle the problems of prices and production. Instead of isolated, uncoordinated, self-controlled and self-contained units, it seeks to introduce unification of control and cooperation on the part of all engaged in the industry, so that the industry acts as one unit. In short, the term rationalisation combines works re-organisation and scientific management usually associated with the name of Taylor and the processes of standardisation and specialisation ascribed to Henry Ford with the industrial combination movement involving not only financial
amalgamation but also price control. It comprehends universal application of scientific methods and technique in all phases of industry relating to production and distribution.

Rationalisation does not refer only to a physical change. But it involves a complete change of attitude of the industrialists concerned. They must work with a new spirit and cultivate fresh vision as to the purpose for which industry is conducted and must examine and solve the various problems in the light of that purpose. It has been observed that on account of increased control and complete security against competitive raids, a new sense of responsibility has been created among the businessmen so that purely profit-making motives have been weakened. A new conception of public service has grown up in industry.

Thus, combinations are no longer considered inimical to the interests of society. Rather they are regarded as an improved form and higher type of organisation. The idea of regulating output by agreement among the producers is no longer looked upon with suspicion either by economic theory or by public policy. On the other hand, there seems to be a general desire to make use of combined action in the interest of economy, efficiency and stability and the big businesses have proved to be great benefactors of the consuming public. The policy of price maintenance has been replaced by the policy

1. How a concentrated industry can keep the prices stable is shown by the fact that the price of steel rails in U.S.A. remained 28 dollars a ton between 1902 and 1913 and in England £8.50 per ton from the end of 1923 to the end of 1934 (Levy -- The New Industrial System, London, 1930) p. 254.
of price-reduction. Carnegie brought down the price of steel to one-fourth and Rockefeller the price of oil to less than one-fourth. Competitive capitalism has failed to preserve its competitive quality and where it has survived, the results have not been entirely satisfactory. There is a growing doubt concerning the capacity of competition to survive and faith in the utility of unfettered competition has considerably weakened. The National Industrial Recovery Act of 1933 in U.S.A. and the large measure of control exercised by almost all governments in the industrial sphere in recent years are a belated recognition of this fact.

Rationalisation does not necessarily mean mass production and creation of the largest industrial units. But it seeks to promote the establishment of optimum units having regard to the marketing possibilities. Now a days efficient organisation of distributive side is considered even more important than the productive side, for no successful policy of mass production can be conceived or executed without linking an appropriate marketing organisation thereto. Technical efficiency without increased demand will simply mean the production of goods, however cheap, which are unsaleable at profitable prices. In practice, therefore, there will be so much unused productive capacity - a loss both to the nation and the industrialists concerned.

There are people still who look askance at the industrial combinations and regard them as instruments of exploitation of the consumers, thinking them to be growing fast on such exploitation. But

combinations are not necessarily profitable. An investigation into 183 combinations in U.S.A. in 1900 showed that 62 had paid no dividend at all. \(^1\) Rationalisation by amalgamation of units has in several cases proved a costly affair. It meant the purchase of less efficient units and an unduly large capital expenditure leading to over-capitalisation. A sound system of rationalisation must avoid such pitfalls.

During the post-war period, industries in Europe, particularly Germany and America, generally passed through a process of rationalisation involving technological, financial and economic re-organisation. Consequently such far-reaching and fundamental changes have been effected in the structure, control and purposes of industry, that it has been called the New Industrial Revolution.

Rationalisation movement in Germany embraced all aspects of industrial organisation viz. research relating to new methods, processes, material utilisation, recovery of waste material and finding uses for by-products. In Germany, rationalisation has become a popular cult among the people and a type of scientific philosophy among the experts. \(^2\) Through mechanisation of processes and concentration of production in the best equipped units, productive efficiency was vastly improved. "In the better mines from the time the coal leaves the mine surface until it is in railway cars ready for shipment, it is never touched by human hand." Between 1923-27,


\(^2\) Brady - *Rationalisation Movement in German Industry*, 1933, p. 6.

\(^3\) Angell -- *The Recovery of Germany*, 1930, p. 93.
the number of productive units in the coal industry was reduced by 21%: production of typical mine was 3,000 tons a day before the war and 4,000 tons after the war. In the steel industry through rationalisation, fuel consumption was decreased by 30% to 60% and output per man increased by 30%. The extent of standardisation is shown by the fact that types of rails were reduced from 110 to 8, picks from 100 to 2 and coal cars from 100 to 3 and a saving of 25 million marks annually was made as a result.

There was a far-reaching inter-industry integration. The steel concerns were integrated with the coal concerns. The relation between steel, coal, chemical and power industries became close and binding and the whole organisation was directed by a central authority.

There was a wide-spread movement for the formation of cartels, the number of cartels rose from 353 in 1905 to 3,000 in 1925. The number of working collieries had been decreased from 350 in 1913 to 294 in 1928. Percentage of collieries producing up to 500,000 tons a year was reduced from 72.77% in 1900 to 23.75% in 1928 and those producing 500,000 tons to one million tons increased from 27.23% to 60.22% during the same period. In the cement industry, five undertakings control 60% of the industry. In the iron and steel industry a giant concern Stahlverein was created by the fusion of six important German mining iron and steel companies. Its yearly capacity of coal production is 36 million tons and coke producing capacity 10 million tons. It has nine blast furnace works with

1. Brady -- Rationalisation Movement in German Industry, 1933, p. 78.
2. Levy -- Industrial Germany, 1935, p. 15.
3. Ibid. -- p. 79.
82 furnaces with a productive capacity of 9.25 million tons a year. In almost all important industries in Germany, there is a wide-spread combination movement so that a single isolated industrial concern is now a strange phenomenon. In France, in 1934 nine metallurgical comptoirs regulated on common lines their output and sales under the general leadership of the Comptoir Sidérurgique.

The Japanese also took up seriously the work of rationalizing their industries and consequently the leading Japanese industries too show a high degree of concentration through amalgamations. In 1929, 55 companies out of a total of 68 had fewer than 100,000 spindles and they owned 30% of the total number of spindles. But by 1935 only 44 companies out of a total of 72 had fewer than 100,000 spindles possessing in all only 14% of the total spindles. In 1929, 8% of the spindles were in the mills with more than 100,000 but in 1935, this percentage had increased to 34, 61.6% of the spindles were owned by ten leading companies.

Japan Cotton Spinners' Association comprises 60 cotton spinning companies out of a total of 74 and controls 97% of the total number of spindles. In the cotton industry four combines control 40 to 60% of the whole industry as judged either by spindles or loom capacity.

Manufacturing Company controls 96% of the production of pig iron and 44% of steel products. 95% of the paper industry is now subject to the control of a single giant corporation, the Oji Paper Manufacturing Co. Both horizontal and vertical combination movement finds its high watermark in Japan. The Mitsui Company engaging in all types of conceivable industrial activity is not inaccurately described as the 'Commercial Empire.'

In England, on account of deep-rooted traditional beliefs in individualism, survival of the fittest and free competition, the industrial combinations were considered un-English and undesirable for a long time. But in the post-war period, the British industries began losing ground in the world markets. A survey of metal industries revealed that England lagged behind in blast furnace practice as compared with their American and Continental rivals. The Cotton Report attributed the defects and deficiencies of Lancashire Cotton Industry to the complete segregation of the various sections in the industry and equally complete isolation of its individual units.

The leaders of the British industry were gradually convinced that some form of rationalisation was essential. In 1933 Mr. Harold MacMillan, M.P.,

3. Committee on Industry and Trade -- Survey of Metal Industries (being Part IV of the Survey of Industries), London, 1928, p. 27.
wrote that either they must allow haphazard and uncoordinated competition to go on to produce its world lunches from normality to depression or to face the problem of finding a method by which the interest of monopoly producing organisation can be brought into harmony with the interest of the Nation as a whole. 1 The Balfour Committee considered that the first step towards restoring the competitive strength of the British industries in the world markets was to subject their organisation and equipment to a thorough process of re-conditioning. 2

Post-war period therefore saw in England a considerable development of trusts and cartels. The Chemical Trust was formed in 1926. In 1932 heavy protective duty of 33\(\frac{1}{3}\)\% was imposed on iron and steel goods on the condition that the industry would produce a satisfactory scheme of re-organisation. The compulsory rationalisation of beet sugar industry was brought about by making the continuation of the subsidy dependent upon amalgamation and controlled production. The Government promoted a scheme under which 15 sugar factory companies were amalgamated with a single public utility corporation subject to extensive control and profit limitation. Similar pressure was exerted on the minority of the producers in Lancashire Cotton Spinning trade and in 1929 Lancashire Cotton Corporation was formed to amalgamate companies in the American Spinning Section of the industry. By 1931 it had acquired 107 mills and it engaged itself in the work of re-conditioning of the mills, the scrapping of the

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obsolete plants and standardising production. The Egyptian Spinners covering about 3 million spindles also amalgamated and this with the Fine Spinners' Association embraced about one-third of the capacity of this section.† The Cotton Spinning Industry Act 1936 introduced a scheme of reduction of the surplus capacity in the whole of the spinning section. In 1937 the Joint Committee of the Cotton Trades Organisation put forward a comprehensive scheme for the re-organisation of the industry and suggested the passing of an Enabling Act to effect rationalisation. According to the Coal Mines Act 1930, the Government insisted on the re-organisation of the coal industry by closing down the obsolete collieries and concentrating production in the most efficient mines. A Coal Mines Reorganisation Commission was set up. There are several instances of amalgamations and closing down of redundant and out-of-date plants so that production may be concentrated in the best works. The aim has been to create a few powerful integrated concerns dominating particular sections of the industry. In U.K., too, under the National Industrial Recovery Act a large measure of concentration in each industry has been effected.

NEED FOR RATIONALISATION IN INDIA.

It appears that rationalisation has been the principal plank in the programme of industrial uplift even in countries already far ahead of us industrially and it is therefore all the more needed in our own case. The extent and form of rationalisation must depend upon the economic and social conditions and the nature of industries in every country. In our country where labour is cheap and

abundant and machinery is costly, we cannot over-reach the optimum point in mechanisation, otherwise the object of rationalisation will be defeated. Rationalisation does not necessarily imply mechanisation. A remarkable example is the rationalisation of the overhauling of locomotives in the Japanese Government railway workshops. No new machinery was installed but by a systematic mapping out of overhauling operations, the time required for overhauling of an engine was reduced from 28 days to five days.\(^1\) We cannot therefore rule out the desirability and feasibility of rationalisation in India on the score of cheapness of labour and costliness of machinery.

As compared with the organised industries in foreign countries, our industries are in very chaotic condition. In every industry there exists a multiplicity of units, highly individualistic in outlook and unwilling or unable to cooperate in any policy beneficial to the entire industry. In India we often find a recalcitrant group blocking the way to rationalisation. Opposition of a few managing agents torpedoed the scheme of a merger in the Bombay cotton mill industry in 1930.

Several of our important industries are in a critical condition. The sugar industry is tasting the bitter fruit of uncontrolled and thoughtless expansion. The jute industry has suffered simply because the component parts would not pull together. The cement industry wisely formed a merger and eliminated unhealthy competition and chances of ill-conceived expansion. But the appearance of the Dalmia group of factories has again subjected the industry to an internecine conflict.\(^2\) The cotton

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2. As a result of a recent agreement entered into between the two interests, this conflict will now come to an end.
INDUSTRIAL PLANNING.

Above all we need purposeful planning of the entire industrial field. Our economic conditions are so bad that economic development is backward that only a drastic re-organisation and a bold policy can enable us to achieve the desired end. To mention a few facts about our economic life will be enough to show what a wide gulf separates us from the progressive countries of the world. Our per capita income may be put between Rs. 50/- and Rs. 60/-, whereas it is more than Rs. 1,000/- in most of the advanced countries. The per capita production in India from agriculture in normal times is Rs. 54, that in Canada Rs. 213: production from industries is only Rs. 12 per head in this country but it is as high as Rs. 721 in U.S.A. The average per capita trade for all India during 1932-33 was Rs. 7.6 and that of United Kingdom Rs. 324; the per capita bank deposits in India come to Rs. 6.4 while those in U.S.A. Rs. 1,123. On the other hand, we lead in illiteracy, ill health and indigence. Our death rate is the highest. Our means of communication most deficient and unsatisfactory. But our natural resources are vast and potentialities great. Only a revolutionary economic policy can bring out what India can yield.

Planned economy has been defined as a scheme

1. Industrial Planning formed a subject of discussion in the 10th Industries Conference held in January 1939. See Bulletin of Indian Industries and Labour No. 67, March 1939. Planning is advocated in the Memorandum submitted by the Madras Government. Other provincial memoranda also indicate the lines of industrial advance especially the new industries which can and should be started in the respective provinces.

2. For these figures see Visvesavarya — Planned Economy for India, 1939, p. 20 and 193.

V. R. R. Rao
(Continued opposite)
of economic organisation in which individual and separate plants, enterprises and industries are treated as coordinate units of one single system for the purpose of utilising all available resources to achieve the maximum satisfaction of the people's needs within a given time.¹ What scientific management does for a particular unit in the industry and rationalisation for all the units in the industry, planning should do for all the industries put together.

We are living in a world which is technically, politically and economically different from what it was before. Markets are no longer expanding naturally and spontaneously. Equilibrium in the present circumstances cannot be brought about by an automatic reaction to the indicator of price fluctuations. On the other hand, to achieve this equilibrium coordination of the activities of individuals and a combination of individuals has become absolutely necessary, for free and unplanned activities of a multitude of individuals having an imperfect knowledge of the activities of each other, are bound to produce disequilibrium. It is idle to expect voluntary cooperation and spontaneous coordination of the various economic interests in the present scheme of things.² Planning is thus forced on us simply because the old mechanism can no longer serve us. Instead of permitting each industry to be a law unto itself, we must make them submit to a central control. Planning seeks to coordinate and regulate the entire economic life of the country.

1. Lewis Lorwin quoted by George Frederick in his 'Readings in Economic Planning,' p. 135.
2. In England in 1935 a scheme voluntarily adopted by 58 coal producers ended not be enforced.
economy can only be rectified by an all comprehensive planning.

It is not proposed that private ownership and a reasonable private control of industry should disappear and that the State should take over the management of industries. On the other hand, the case against government management is overwhelmingly strong, for under government management of business bureaucracy is enthroned and routine replaces initiative. The governmental machinery is, as a rule, ponderous and slow-moving; it is singularly unresponsive to new ideas and improvements and is generally top-heavy. Highest efficiency possible cannot be attained under these conditions. A non-official authority of unquestioned competence and impartiality working under constant but sympathetic vigilance of the State can well meet the situation. Again, the sovereignty of the consumer need not be impaired and the functioning of the price mechanism may be left intact. But within the existing framework of capitalistic economy, greater coordination of economic activity is not only possible but desirable. We should steer clear of uncontrolled and uncoordinated capitalism with its production stimulated to the extreme by its motive-force of unhampered individual interests but with its hopelessly inefficient system of distribution resulting in periodical crisis on the one hand and of socialism with its distribution approaching the ideal but with production almost fatally handicapped by lack of individual initiative and enterprise on the other. We would prefer Roosevelt to Stalin.

(Continued from the previous page foot note). 1938 had therefore to empower the Coal Commission to submit to the Board of Trade a scheme for compulsory rationalisation.
The time-honoured laissez-faire doctrine is dead all over the intelligent world and the principle of collective control designed to secure stabilisation of output and prices has been definitely accepted. Fundamental changes in the economic structure are taking place in the world. Everywhere some form of regulation is being introduced in all spheres of economic activity -- consumption, production and distribution. We cannot stand still in a fast moving world without being left still farther behind. It is a happy augury and a due recognition of the imperative and urgent necessity of planning that the Indian National Planning Committee has been appointed. Its various sub-committees are functioning and have been able to secure cooperation from all the provincial governments. It is hoped that some practical plans for the planning of our economy will come out of their efforts.

SOME OTHER AIDS TO INDUSTRIES.

A quite effective method of fostering industrial development is a sympathetic tariff policy. American and continental industry was nursed and brought up under the shelter of a high tariff wall. There is no gainsaying the fact that several of our industries, viz., iron and steel, sugar, cotton mill industry, and paper industry are deeply indebted to the policy of protection.

But the discriminating protection that we have given to our industries is not enough. Although one may not agree with the remark that the policy of discriminating protecting protection is all discrimina-
tion and no protection, yet one cannot help saying that it has not fulfilled the expectations of ardent industrialists in India. The results that it has produced after over 15 years’ trial in India can stand
no comparison with what has been achieved in Russia, Japan and Germany in the same period. We are still predominantly an agricultural country and yet far way from our ideal of industrialised India.

The fact is that the conditions laid down by the Fiscal Commission for the granting of protection are too severe. They take no account of the export market and can only consider the industries that have already come into existence. The procedure is too dilatory and unsuitable to a case where a prompt action is essential. In several cases the recommendations of the Tariff Board— an expert body— have been rejected or modified by the Government and this, coupled with periodically recurring inquiries, imports an element of uncertainty in the Tariff policy. Besides, such a policy does not inspire confidence in an average business man in India. On the whole, the policy is considered halting by industrialists in India and a more aggressive policy is therefore necessary. A permanent machinery in connection with each of the important industries should be created so that if anything goes wrong, the action taken should be almost automatic, expeditious and effective.

But protection alone will not do. Protection is a negative policy and we need a positive and forward policy. The chief handicaps under which our industries are labouring are the inadequacy of capital and credit facilities, lack of enterprise and industrial experience, inadequate knowledge of our resources and potentialities, lack of organised cooperative effort and collective action and the absence of driving and directing force from the State. All these problems should be carefully studied and boldly tackled.
The main requisites of industrial development are men, money, materials, markets, motive power and machinery. Out of our human material we must produce, through scientific training and technical and general education, captains of industry, and efficient managers and skilled, resourceful, healthy and responsible workers. Capital resources of the country must be mobilised by means of an efficient system of banking. The quality and quantity of the raw materials must be improved through the development of agriculture on modern scientific lines. Marketing organisation must be improved and made more efficient. And above all, hydro-electric resources of the country should be fully tapped so that energy at cheap rates is made available to the industries.

Other aids to industrial development are encouragement of research, which is at present carried on by several organisations in an isolated and un-coordinated manner,\(^1\) improvement of the means of communication and transport, sympathetic stores purchase and railway rates policy, collection and dissemination of industrial intelligence and a suitable machinery for exploring the possibility of new industries and doing the necessary preliminary prospecting work. For this purpose a survey of the industrial possibilities of the various regions should be taken in hand forthwith.

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1. The Government of India has now set up a Board of Scientific and Industrial Research. This Board will utilise the existing research organisations and coordinate their activities. The Government has sanctioned Rs. 2,00,000 for research schemes recommended by the Board.
THE ROLE OF THE STATE.

There is a growing conviction that voluntary action in the interest of healthy economic development for the highest good of the nation has miserably failed and some measure of compulsion seems to be necessary. The State can no longer remain a passive spectator of chaotic conditions of industries and must establish close and permanent contact with the industrial leaders to direct their energies in the proper channels. The State intervention in the economic sphere is no longer considered as incompatible with capitalistic structure of society. On the contrary, it is recognised that the State owes it to the society to prevent private individuals from committing errors or taking any action which may be prejudicial to the general interests of society. It is also recognised that some positive action on the part of the State is called for to promote economic well-being of the nation. Thus recent times have witnessed everywhere increasing tendency on the part of the State to interfere in the business sphere.

Japan offers the best illustration of the paternal attitude of the State towards economic development of the country. Japan owes its spectacular industrial development to the initiative and fostering care of the State. At the beginning of the Meiji era in 1868, there was in Japan only one infant factory in the modern sense. Today Japan is easily in the first rank of the leading industrialised countries of the world. Her progress has been phenomenal. As late as 1872 all industry was still domestic but in 1893 there were 1,163 factories and the number rose to 3,300 in 1909. In 1872 there were no imports of raw materials; in 1895 these imports
were valued at 40,000,000 yen and in 1910 the imports of raw cotton alone exceeded 158,000,000 yen in value.\textsuperscript{1} Even during the last ten years, output in metallic industry has increased 330\%, mechanical industry 237\% and chemical industries 222\%.

All this could not be accomplished without the active assistance of the State for the Japanese merchants and industrialists had no capital and no experience. 'There are few modern industries today that do not owe their existence to government initiative.'\textsuperscript{3} It is therefore rightly remarked that 'in Japan .... modern industrialisation had the State as its god-father, if not its progenitor.'\textsuperscript{4}

The government in Japan did a lot of pioneering work and later changed its role of an entrepreneur into one of the financier. The Japanese Government established and maintained model factories in some cases and in others participated in financing business enterprises.\textsuperscript{5} It promoted economic development directly by the use of public credit and indirectly through the credit of banks established under its auspices. Other measures taken by the Government in Japan were the imposing of protective duties, granting of subsidies, sending students for technical training to foreign countries, engaging

\textsuperscript{1} Bryan -- Japan from Within (London, 1924), p. 39.
\textsuperscript{2} Japan's Finance and Industry (Far Eastern Situation as seen by Impartial Observers), p. 10.
\textsuperscript{3} Orchard -- Japan's Economic Position (New York, 1830), p. 99.
foreign experts and specialists, negotiating
favourable commercial treaties and sending round
experts to advise small factories. Subsidies
amounting to 384,000 yen were given between 1931 and
1936; Government sanctioned 120,000,000 yen for an
enterprise of dye stuff manufacture and 50,000,000
yen for glycerine industry.\(^1\)

Recently through legislation or otherwise
rationalisation has been encouraged and Government
control extended. Since 1937, all the processes
of cotton industry from the import of cotton to the
export of cotton goods have been placed under
strict State control and in 1938 the Government
adopted the individual link system and carried on an
epoch-making re-organisation of the cotton industry.
The union in the iron and steel industry was brought
about under the Japan Steel Manufacturing Company
Law promulgated in April 1934. Another epoch-making
measure viz., Major Industries Control Law was
passed in 1931 which instituted and centralised
cartels. Under this law if more than half of the
manufacturers in any industry entered into an agree-
ment then the Government can, on application from
more than two-thirds of the parties to the agreement,
declare such agreement binding not only on the
members but also on the non-members. Export
Industries Association Law was promulgated in 1923
for promoting rational management in small and
medium industries. The Bureau of Rationalisation as
a part of the Ministry of Commerce and Industry was
set up in 1930 to exercise Government control over
the hitherto autonomous cartels to assist the
healthy development of industry. On May 14, 1937
was set up the Planning Board under the control of

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1. Bagchi -- Industrial Development of Japan,
1939, pp. 4-8.
the Prime Minister consisting of regular investigators and experts in the various walks of life. There was also to be a Central Economic Council. More recently, extensive Government control has been exercised on production, consumption and investments.

The fact is that in Japan state ownership of industry has been very extensive and the relation between Government and private enterprise has been the closest. As the highest embodiment of paternalistic tradition, the State in Japan has taken a very comprehensive view of the entire industrial field and has guided and directed private enterprise on the lines best suited to the country.

Japan is not the only country where the Government has taken interest in fostering healthy industrial development. In Germany cartelisation was officially sponsored,¹ and the State, as in the case of coal and steel, became a partner in private syndicates. Under a law of July 1933, the Minister of Economic Affairs can ask the syndicates to federate and cease competition, he can prevent the increase of new companies. In 1933-34 compulsory cartels were formed in 26 important industries and setting up of the new and extending of the old undertakings was forbidden, as there was ever 50% surplus capacity.² In Germany there is a strong tendency of governmental interference in business. Almost 40% of the national income goes through the hands of the exchequer.³ There is a

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1. In 1934 all cigarette making firms were ordered to form a cartel and 120 firms were affected. See also Report on Economic Conditions in Germany by Donaldson Macline (London, 1936).


strong inclination for the state-regulation to replace automation of the free market. During 1933-34, the German industry and commerce were organised by the Nazi Government into thirteen groups with a large number of sub-groups. These groups were combined with chambers of commerce, with the National Chamber of Commerce at the top and the whole structure subordinated to the Minister of Economics. The underlying idea is to develop the system of self-government in industry subject to the general direction of the state, leaving management and risks of business in the hands of private enterprises. About the Nazi industrial machine it is said that it "creaks and groans but nevertheless moves with surprising rapidity, no one everybody grumbles, but everybody continues . . . . on the one side there is a control with a wide field of quick decisions and armed with supreme authority, while on the other side, there is a highly disciplined organisation of the productive forces of the whole community."

In England, the home of laissez-faire, there has also been a swing in the economic policy of the state. Pressure was exerted to affect rationalisation in the iron and steel industry, sugar beet industry, the cotton spinning industry, and coal industry. Synthetic dye stuffs, beet sugar, coal oil and the production and exhibition of cinematograph films are some of the lines where the industries were brought into existence by the conscious action of the state. In the decade 1934-35, the beet sugar subsidy payments amounted to £30 million and abatement of excise duties to over £10 million and by

August 1935, the total of these two was not less than £45 million.¹ In 1930 Mr. Ramsay MacDonald announced the establishment of Economic Advisory Council representing industrialists, politicians and labour as a standing body to advise the Government on economic matters and to make a continuous study of development of trade and industry. Short of government management, the State intervention in England, in trade and industry has been vastly extended. England no longer seems to adhere to the traditional principle of organising industry on the basis of a multitude of competing individual concerns. On the other hand, the principle of collective action and cooperation has been firmly established. Various administrative devices like subsidies, levies and marketing boards have been adopted to coerce the recalcitrant and the industry has been bestowed large powers for enforcing internal discipline and control and for establishing effective agencies for self-government. The Import Duties Advisory Committee got a mandate which seemed to establish a principle of an almost unlimited official intervention. The Commissioners appointed under the Special Areas Act of 1934 have been exercising, since 1937, much conscious intervention affecting the location of industry by providing Trading Estates and offering to pay wholly or in part, the rates, rents and Income tax for a specified period. At the end of September 1938, the Commissioners' total commitments in this connection amounted to almost 17 million pounds half of which had already been spent.² Thus the whole background in which British industry is to operate seems to have been

radically changed and there is a rigid regimentation almost of the entire range of British industry at the present time. Within a short time of the breaking of the present war, the economic life of the country was re-organised and within the existing frame-work of industry, a far-reaching coordination of private enterprise has been effected and a virtual economic dictatorship established.

The New Deal in America introduced in America extensive governmental interference in the economic sphere. 546 codes and 185 supplementary codes and 11,000 administrative orders were issued covering an enormous range of industries and 22 million workers.¹

The Government in Italy has been authorised to purchase shares of private companies and to guarantee both the capital and the payment of a small rate of interest and thus makes increasing State regulation inevitable.

This is the story of State action in other countries. The State in India, too, will have to pursue a policy of activism and discard passivity.² There is surplus capacity in our jute industry and cement industry, chaos in sugar industry and extreme individualism in the cotton mill industry. Recently when the sugar industry did not carry out the behest of the Government, the only action taken was the withdrawal of recognition from the Sugar Syndicate.³ Such negative action in these days is not enough. A

² 'The absence of industrial policy is much more noticeable in India than its presence,' (Manubhadev in the Indian Central Banking Enquiry Committee Vol. I, Part II, Minority Report, 1931, p. 319.)
³ A Sugar Commission has been now set up.
bolder policy is needed. Government interference in this country also is increasing as is illustrated by the steel and jute industry, but no comprehensive view is yet taken. The State must create conditions congenial enough for the industries to thrive so that the economic resources of the country are made the best use of. The Government must be equipped with personnel representing the best industrial knowledge and experience available in the country so that it can act as a competent adviser to the industrialists. In almost all European countries persons who can give expert advice have been associated with the government and Economic Advisory Councils have been established. We must also devise a machinery which can work more expeditiously and effectively but which should at the same time be sympathetic, inspire confidence and leave a large scope for private initiative and enterprise.

Further, the Government must see that the control of industry does not pass into the hands of a ring. Appointment of independent chairmen with large administrative experience will, besides placing the services of experienced administrators at the disposal of the industry, ensure examination of all problems from the point of view of national economic welfare. People in India by tradition always look to the State to guide and direct and the assumption by the Government of wide powers, which are so necessary in modern times, will be only too welcome. The Government is the pivot for carrying out the measures suggested here for the industrial development of which our country is capable. So long as the Government does not take the lead, confidence in the industrial future of India will not be created and the necessary conditions for a rapid industrial development which we so badly need will be lacking.
CONCLUSION:

RETROSPECT AND PROSPECT.

Industrially India was at the pinnacle of glory in the ancient times. Products of her industries, varying in organisation from the master-craftsmen-unit to the domestic type with Karkhanas in the big cities, dominated not only the home markets but also commanded world-wide demand. The organisation of production, finance and marketing, though crude, was efficient, economical and served well the needs of the time.

The impact of the West in modern times adversely affected the old industrial structure so that those monuments of ancient industrial arts have decayed or are decaying. Realising the enormity of the mischief done by the disappearance of the old handicrafts, Indian economists and statesmen turned their attention towards the resuscitation of the old industries. The interest taken by the Central Government, Provincial Governments and Mahatma Gandhi with all the weight that he carries is a sure guarantee that at least some of them will be salvaged. The handloom industry and hand-made paper industry are showing signs of new life and they are being moulded and strengthened through the cooperative movement.

The modern large-scale industry taking its inspiration from the West arose to fill the gap created by the decay of old industries and to meet the requirements of modern standards of life. Lacking in experience, industrial knowledge, adequate capital, trained managers, foremen and
operatives, and above all, without guidance and encouragement from the State, the pioneers of Indian industry, although quite lucky in making profits sometimes, worked blunderingly and could not consequently be expected to create healthy and efficient industrial units. In the early industrial concerns, location was not always the best, equipment was deficient or defective and unbalanced, organisation was primitive, production crude and the industrial unit generally uneconomical. The progress was painfully slow and uneven.

But the last world war left a legacy for the Indian industries and the post-war period witnessed somewhat the quickening of the industrial pace. The policy of protection and the otherwise sympathetic attitude of the State added to this momentum. The structure of the principal industries of India began undergoing a fairly rapid change especially during the last decade. Mechanical equipment is being modernised and proper balance restored to the plants; production is becoming finer and more diversified as in cotton and paper industries and more standardised as in sugar industry. The mistakes of early entrepreneurs in localising works in certain areas are being rectified by the setting up of factories in the more favourable sites e.g., in cement industry. Some degree of decentralisation may therefore be anticipated. Attempts are being made to improve the quality of the raw material by increasing the area under improved varieties and other agricultural improvements as in the cotton and sugar industry; in some cases a new material has replaced the old one e.g. sabai grass replaced by bamboo in the paper industry.
and greater use of mixtures in the cotton industry. The industrial units are becoming more economical and bigger and are likely to become bigger still as the result of amalgamations and mergers. Marketing organisation continues still to be weak although it has been improved in the cement, sugar and tea industries. It is bound to improve when, as the result of increased production, we have to tap the foreign markets. Then the industrial structure too will undergo further changes to enable us to compete in the world markets. Existence of surplus capacity indicates the necessity of rationalisation. Cartelisation in the cement industry and increasing regulation in sugar, jute and tea industries show that we have already taken the first steps. The Industry is still pressed under the heavy cost of management and finance and threatened by the growing restiveness of the labour force.

We are at the threshold of the new phase in our industrial life. While opportunities for starting new industries will be ever opening out, yet in several of the important industries, we seem to have reached the limit of expansion considering the home market, unless the standard of living goes up appreciably in the near future or reduction in the costs enables us to capture foreign markets. The era of expansion will now be succeeded by an era of consolidation. For this purpose a definitely favourable and sympathetic policy will have to be pursued by the State and a fundamental change in the outlook of industrialists will also be necessary. Only then shall we be able to safeguard the capital already invested in the industry and attract new capital, preserve
the home markets and win the foreign ones. There must be a conscious and deliberate development instead of undirected evolution that has taken place so far.

It is hoped that in the near future, ownership of industry will be replaced by trusteeship and the business manager will occupy a position of threefold responsibility: he will act as a trustee to the shareholders, a guide to the labour force and a guardian of the interests of the society. There will be a change from the policy of grab and run to one of long-range planning and from labour tutelage to labour cooperation. So far, there has been haste rather than speed, profits without proficiency, sales without satisfaction and organisation a misnomer for makeshift. But our industry shall no longer totter along its path in a haphazard manner without balance, without direction and without a pre-determined plan. With her vast and varied resources, India can show a progress which will simply astonish the world, given a suitable economic organisation, a sympathetic political structure and an appropriate social background.

In the mean time the outbreak of the present war has opened out new possibilities for the development of several Indian industries. Restrictions have been imposed on imports. Notification of May 20, 1940 affected as many as 60 items in our imports. Shrinkage of imports and rise in prices are bound to give a fresh lease of life to several small and struggling units in our industries, for example, the textile group. Cotton, wool, jute and silk will receive a substantial benefit. Supplies of aluminium having been almost entirely cut off, it is hoped that a firm foundation of this new industry will be laid in India by the
time the war comes to an end. A ship-building industry will also be established. Industries catering for the domestic market and those engaged in the production of war supplies will receive immediate benefit. On the whole, the war must act as a stimulus towards enlargement of India's industrial capacity and technique. But the difficulty of securing some necessary raw materials and suitable machinery will impose a serious handicap on our industries reaping a full advantage of the war.
Bibliography.

A. Books.

Adarker -- Indian Tariff Policy with Special reference to Sugar Industry (1936).

Akhtar -- Emigrant Labour for Assam Tea Gardens (1936).


-- British Industries and their Organisation (1933).

Angell -- Recovery of Germany (New Haven, 1930).

Anstey -- The Economic Development of India (London, 1931).

Arnold -- Banks, Credit and Money in Soviet Russia (1937).

Ayyar -- Small-Scale Production in India (1930).

Baijnath Prasad -- India as described by Early Greek Writers (Allahabad, 1939).

Bagchi -- Industrial Development of Japan (Calcutta, 1939).

Balkrishna -- Industrial Decline of India (1917).

Bannerjee, N. C. -- Economic Life and Progress in Ancient India (Calcutta, 1928).

Bannerjee, N. N. -- Monograph on Cotton Fabrics of Bengal (1898).

Barker -- America's Secret (1927).

Barker and Mallett -- Introduction to Corporate Finance (1936).


Beckerath, Herbert, Von -- Modern Industrial Organisation (1933).


Birdwood -- Industrial Arts of India (1880).

Blanc -- Cooperative Movement in Russia (1924).

Blockmann -- Abul Fazl, Ain-i-Akbari (1878).

Bloomfield, Daniel -- Selected Articles on Modern Industrial Movements, (1920).

Boothby and others -- Industry and the State (1927).
Bowley and Robertson -- A Scheme for an Economic Census of India (New Delhi, 1934).

Brady -- The Nationalisation Movement in German Industry (1933).

Bryce -- Japan From Within (1924).

Brij Narsin -- India in the Crisis (1934).

-- India Before the Crisis.

Brown -- India's Mineral Wealth (1936).

Buchanan -- The Development of Capitalist Enterprise in India (New York, 1934).

Burne -- Industry and Civilisation (1925).

Burne, E. -- The Progress of Agricultural Science in India during the last twenty-five years (1939).

Burns -- The Decline of Competition (1936).


Cassel -- Monopolistic Tendencies in Industry and Trade.

Chaudhuri -- The Evolution of Indian Industries (Calcutta, 1936).

Chaudhry -- Jute and Substitute (1933).

Chatterton -- Industrial Evolution of India (1912).

Chirol -- India (1926).

Clow -- The Jute and Industry (Calcutta, 1923).


Crooks -- Tavernier's Travels in India (1925).


Das, Habagopal -- Industrial Enterprise in India (1933).

-- Industrial Planning: Why and How (Calcutta, 1940).

-- Banking and Industrial Finance in India (Calcutta, 1936).


Dasgupta -- Law and Practice of Banking (1935).

Day, Clive -- Economic Development in Modern Europe (1933).

Dannison -- The Location of Industry and the Depressed Areas (London, 1939).


Dutt — Economic History of British India (London, 1902).

Dyreson — Evolution of Industry (1899).

Einstein — Economic Foundation of Fascism (1933).

Elphinston — History of India (1916).


Enfield — Cooperation (1927).

Faulkner — American Economic History (1928).

Fay — Cooperation at Home and Abroad (1939).

Florence — Logic of Industrial Organisation (1933).

Ford — My Philosophy of Industry (1929).


Fredrick — Readings in Economic Planning (1932).


Gadgil — The Industrial Evolution in India in Recent Times (1929).

Gandhi — How to Compete with Foreign Cloth (1931).

— Cotton Industry Annual (Calcutta, 1938 and 1939).

— Sugar Industry Annual (Calcutta, 1937 and 1938).


Gangulee — India, What Now?

Gee — Monograph on Fibrous Manufactures in the Punjab (1899–90).

Glaenden — Economic Consequences of Progress (1934).


Hadi — The Indian Sugar Industry (1929).

Hailey — Monograph on the Silk Industry of the Punjab (1899).

Harada — Labour Conditions in Japan (1928).

Harris — J. N. Tata.

Harris, T. — Monograph on the Carpet Weaving Industry of Southern India (1908).

Havell — History of Aryan Rule in India MCMXVIII.

Hogland -- Corporation Finance (1936).
Holland -- Sketch of Mineral Resources of India (1908).
Horobin -- The Pleasures of Planning (1935).
Howard -- Recent Industrial Progress of Germany (1907).
Hubbard -- Eastern Industrialization and its Effects on the West (1935).
Hugh -- Cooperative Movement in India (1932).
Hunter -- Imperial Gazetteer (1885).
James -- Indian Industries (1889).
Jerome -- Mechanization in Industry (1931).
Johnstone -- Monograph on Woollen Manufactures of the Punjab (1884-85).
Kaji -- Cooperation in Bombay (Bombay, 1930).
Kanisaka -- The Cotton Industry of Japan (1934).
Khosla -- Indian Steel and Protection (Calcutta, 1939).
Kobayashi -- The Basic Industries and Social History of Japan 1914-18 (1930).
Latifi -- Industrial Punjab (1917).
Latimer -- Monograph on Paper-making in the Punjab (1905-06).
Lee -- Industrial Production (1927).

-- Industrial Germany (1935).
-- The New Industrial System (1936).
Lewis -- Price & Production Control in British Industry (Chicago, 1937).
Lieu -- China's Industries and Finance (1927).
Link -- Education and Industry (1923).
Lippincott -- Economic Resources and Industries of the World (1923).
Lucas -- Industrial Reconstruction & Control of Competition (London, 1935).
Macleod — Modern Industrial Tendencies (1926).
Matheson — Indian Industry, Yesterday, Today and Tomorrow (1930).
Maxwell — Economic Aspects of Cane-Sugar Production (1928).
— Modern Milling of Sugar (1932).
McFarlane — Economic Geography (1928).
McGregor — International Cartels (1927).
Mead — Corporation Finance (New York, 1923).
Meskin — The New Industrial Revolution (1925).
Miller — The Cooperative Movement Today and Tomorrow (1930).
Mookerjee — Foundations of Indian Economics (1916).
Moreland — India at the Death of Akbar (1920).
Mukhtar — Factory Labour in India (1930).
Myres — Industrial Psychology (1930).
Nazir Ahmed — Cotton Research in India, 1 24-35 (1935).
Ogata — The Cooperative Movement in Japan (1929).
Pannandiker — Banking in India (Bombay, 1940).
— Industrial Labour in India (1933).
Pala — The Industrial Development of India (1930).
Parshad — Some Aspects of Indian Foreign Trade 1757-1893 (1932).
Pears — The Cotton Industry of India (1930).
Pentulu — Cooperation in India (1938).
Plummer — International Combines in Modern Industry (1934).
Pole -- India in Transition.

Powell -- The Punjab Manufactures.

Qureshi -- State and Economic Life (Bombay, 1938).

Ray -- Paper Tuff Supplies from India (1921).

Randolph and Ray -- Rural Industries of England and Wales.


--- What is Wrong with Indian Economic Life? (Bombay, 1936).


Rau, B. Ram Chandra -- Economics of Leather Industry (1925).

Rawley -- Silk Industry (1918).

Research Committee of the Economic Science and Statistics:
Section of the British Association -- Britain in Recovery (London, 1936).


Robinson -- Investment Trust Organisation and Management (1929).

Roussiers -- Cartels and Trusts and their Developments (1927).

Roy -- Agriculture of Coton in India and Elsewhere (1931).

--- The Fibrous Plants of India (1855).

Roy -- India's Foreign Trade Since 1870, (1934).


Samadder -- Lectures on Economic Conditions of Ancient India.

Samant and Mabury -- Organisation and Finance of Industry in India (1937).


Schonfield -- The Book of British Industries (1933).

Scudamore -- Monograph on Iron and Steel Works in Bombay Presidency (1907).

Sen -- Economic Reconstruction of India (Calcutta, 1939).

Shields -- Evolution of Industrial Organisation (1928).


Stephenson and Branton -- Economics of Banking, Trade and Finance (1933).

Strickland -- Cooperation in India (1938).
Subba Rao -- Some Aspects of Economic Planning (Bangalore, 1925).
Tannan -- Banking Law and Practice in India (1933).
Thakur -- Organisation of Indian Banking (Calcutta, 1929).
Thorton -- History of the British Theatre in India (1941).
Unwin -- Industrial Organization in 16th and 17th Centuries (1904).
Urwick -- The Meaning of Nationalisation (1929).
Vakil and Haluste -- Commercial Relations between India and Japan (Bombay, 1937).
Vakil and Kunshi -- Industrial Policy of India (1934).
Vakil and Suranjan -- Currency and Prices in India (1927).
Vakil, Bose and Meadiker -- Growth of Trade and Industry in Modern India (1931).
Visvesavarya -- Industrialising India (1939).

-- Planned economy for India (1934).

Wadia -- Geology of India (1909).
Wallace -- Botswana of Jute (1928).
Walter -- Cooperative Movement in Denmark, Italy (1934).
Warriner -- Comites and Nationalisation in Germany (1931).
Wershon -- Representative Industries in the United States (1928).

Watson -- Monograph on Iron and Steel Works in Bengal (1907).
Wells -- The Work, Wealth and Happiness of Mankind (1932).
Weston -- Economics of English Banking System (1931).
Wheal -- Joint Stock Banking in Germany (London, 1930).
White and Shanken -- The Industrial Revolution and the Economic World Today (1932).

Williams -- Investment Trusts in America (1928).
Wilbertforce -- Monograph on Stone Carving and Inlaying in the Punjab (1904-05).

Wilson -- Recent Economic Development in the Punjab (1910).
Withers -- The Business of Finance (1920).
Woodhouse -- Jute Industry (1921).

Worsley - Monograph on India and Trade Industries in the Punjab (1906-07).

Britain Without Capitalists by a group of Economists, Scientists and Technicians (1936).

Japan's Finance and Industry (The Eastern Situation as seen by Imperial Observers).

*******

(B)

Reports of the Indian Enquiry Board on --


Iron and Steel Industry -- 1923 (Representation by Tatas), 1924 (three parts), 1925 (Complementary Protection), 1925 (Evidence), 1926 (8 Vols.), 1926 (Iron and Steel Industry), 1934.

Cement Industry -- 1928 (Full Evidence).

Match Industry -- 1928.


Report of the Royal Commission on Agriculture in India, 1928.

Report of the Royal Commission on Labour in India, 1931.


Reports of the Provincial Banking Enquiry Committees, 1931.


Report of the Indian Coal Mining Committee, 1937.


Reports of Indian Industrial Conferences held each year from 1905-18.


Indian Census Reports.


National Planning Committee being an abstract of proceedings and other particulars relating to the National Planning Committee issued by the General Secretary.

Reports of the Industrial Research Bureau.

Reports of the Proceedings of the meetings of the Sugar Committee of Imperial Council of Agricultural Research.

Reports of the Agricultural Department of Bihar and Orissa, 1935 and 1936.

Reports on the Improvements in Indian Agriculture.

Review of Agricultural Operations in India (Annual).

Review of the Trade of India (Annual).

Agriculture and Animal Husbandry in India (Annual).

Records of Geological Survey of India.

Memoirs of Geological Survey of India.

Hydro-Electric Survey of India, Triennial Report, 1922.


Memorandum Submitted by the Indian Sugar Mills Association to the Tariff Board in 1937.

Memoranda submitted by the various Chambers of Commerce and the Shareholder's Association on the Indian Companies Amendment Act. Amendment to, 1927.


Pamphlet issued by the Department of Industry Punjab on Hand-weaving.

Annual reports of the Indian Central Cotton Committee and the statistical and other bulletins issued by it.
Annual Reports of the Imperial Council of Agricultural Research and bulletins issued by it.

Annual Reports on the Administration of Indian Companies Act of 1913.

Annual Reports of the Reserve Bank of India presented to the Shareholders.


A Plea for Municipal Housing for the working classes submitted to the Ahmedabad Municipality by the Labour Union.


Financial and Economic Annual of Japan.

Large Industrial Establishments in India (Biennial).

Estimates of Area and Yield of Principal Crops in India (Annual).

Quinquennial Report on the Average Yield per acre of Principal Crops in India.

Joint Stock Companies registered in India and in the Indian States (Annual).

Studies in Indian Economics issued by the Economic Adviser to the Government of India --

First Series:

No. 1. -- The Burden of Indian Tariff by T. E. Gregory and W. R. Natu, 1939.

No. 2. -- The History of Indian Tariff 1924-39, by B. N. Adarkar.

Second Series: Aspects of Indian Social Economics.

No. 1. -- Changes in Occupational Distribution of the Population by B. G. Ghate.

A Scheme for an Economic Advisory Organisation in India, Report by Sir Arthur Salter, 1931.

Indian Year Book.

Whitakers Almanac.

Investor's India Year Book.

Calcutta Stock Exchange Official Year Book.

Southern India Investor.

Statistical Year Book of the League of Nations.

Indian Finance Year Book.

Annual Reports of the Reserve Bank of India on Currency and Finance.

Annual Reports of the Tata Iron and Steel Company Ltd.
Annual Reports of the Bombay Millowners' Association.
Annual Reports of the Ahmedabad Millowners' Association.
Annual Reports of the Textile Labour Association, Ahmedabad.
Annual Reports of the All-India Spinning Association.
Annual Reports of the All-India Village Industries Association.
Annual Reports of the Indian Tea Association.
Annual Reports of the Provincial Department of Industries.
Annual Reports of the Cooperative Departments of Indian Provinces.

Bulletins of Indian Industries and Labour --

No. 16. -- Notes on Indian Piece-goods Trade by A. C. Coubrough, 1921.


No. 30. -- The Possibilities of Manufacturing Portland Cement in U.P. by F. E. Watson.

No. 54. -- India's Coal Resources by Sir Lewis Leigh Fermor, 1935.

No. 57. -- State Action in respect of Industries, 1928-35.


League of Nations: --

World Economic Survey (Annual).
Memorandum on Production and Trade.
Summary Memorandum on Various Industries, 1927.
Memorandum on Coal, 1927 Vols. I and II.
Review of Legislation on Cartels and Trusts.
Commercial Banks, 1928-33 (1934).
Memorandum on Commercial Banks 1917-1929 (1931).
Memorandum on Steel and Iron Industry, 1927.
International Labour Office. -- Industrial Labour
Committee on Trade and Industry (London): --

Factors of Industrial and Commercial Efficiency, 1927;
Survey of Metal Industries, 1928;
Survey of Textile Industries, 1929;
Final Report, 1929.


Report of the West India Sugar Commission, 1930.

Report of Delegation on the Industrial Conditions in the
Iron and Steel Industries in France, Belgium, Luxemburg, Germany, Czechoslovakian (London, 1930).


Report of the Committee on Finance and Industry, London,
1931.

Report on Fixed Trusts by the Departmental Committee
appointed by the Board of Trade (London), 1936.

Report of the United Kingdom Sugar Industry Enquiry
Committee, 1935.


Correspondence relating to the position of the Sugar Industry in Certain West Indian Colonies, 1930, Vol. II.

Report of the Imperial Economic Committee Eighteenth

Survey of the Import Trade of India by His Majesty's
Trade Commissioner in India.

Report of the Liberal Industrial Inquiry, Britain's
Industrial Future (London), 1929.

Department of Overseas Trade (England): --

Report on Economic and Commercial Conditions in
U.S.A. by H. O. Chalkley, 1936.
Report on Economic Conditions in Italy by
Report on Economic Conditions in Germany by
Donaldson Rawlins, 1936.
Report on Economic Conditions in France by Sir
Robert Cahill, 1934.
Report on Economic and Commercial Conditions in
Japan by Sir G. R. Sansom, 1936.

Bureau of (U.S.) Foreign and Domestic Commerce --
United Kingdom, An Industrial, Commercial and

...........

( C )

STATISTICAL PUBLICATIONS.

Live - Stock Statistics of India (quinquennial).

Statistics of Factories Subject to the Indian Factories
Act (Annual).

Annual Return of Statistics relating to the Forest
Administration in British India.
Statistical Abstract for British India (Annual).
Statistical Tables relating to Banks in India (Annual).
Raw Cotton Trade Statistics (Annual).
Indian Tea Statistics (Annual).
Indian Coal Statistics (Annual).
Monthly Statistics of the Production of Certain Selected Industries of India.

( D )

JOURNALS AND PERIODICALS:

Indian Economist (Weekly) Calcutta.
Indian Finance (Weekly) Calcutta.
Capital (Weekly) Calcutta.
Indian Trade Journal (Weekly).
The Indian Journal of Economics, (Quarterly), Allahabad.
Indian Textile Journal (Monthly), Bombay.
Indian Review.
Modern Review.
International Sugar Journal (Monthly).
Indian Journal of Agricultural Science (Monthly).
Agriculture and Live Stock in India.
Indian Farming.

Bank