CHAPTER-II

HISTORICAL BACKGROUND OF INDUSTRIES

The word 'industry' means a group of enterprise that creates a similar economic goods or utility, for example the automobile industry, the poultry industry and the banking industry. Each industry is based on labor specialization; groups of individuals export in particular fields strive towards improved skill and efficiency in providing a particular good or service[1].

As man's basic needs are satisfied a series of other needs evolve the satisfaction of those more complex and diverse needs required the exercise of ever greater efficiency which is gained through continued specialization and the evolution of technology in an industry. The result of this trend is an economy or industrial organization that has specialized fields, each serving the needs of others. The benefits of industry organization area many but they are summed up in a word, efficiency[2].

Industrial growth means more jobs, more jobs means more demand for goods and series against stimulating output. As output is stimulated still more efficient means of production can be utilized[3].

Industrialization has been defined, "as a process in which changes of a series of strategical production functions are taking place. It involves those basic changes that accompany the mechanization of an enterprise, the building of a new industry the

[1] The Encyclopedia American International Edition 1829
[2] Ibid., p-128
[3] Ibid., p-129

opening of a new market and the exploitation of a new territory. This is in a way a process of developing as well as widening of capital[4].

Industrialization is treated as a process in which the economic gains of industrial progress, mainly in the nature of increasing returns are continuously creates and wholly or partially realised[5].

Agriculture and development in the productivity of agriculture is one of the most important means of promoting industrialization. Further it is claimed that close inter dependence of agriculture and industry has always existed in an economic society, although its patterns have undergone many changes in the process of economic evolution[6].

According to I.C. Dhingra, "Industrialization is a process in which there is a sharp increase in the industrial share of GDP (gross domestic product) and of the labour force it is thus the process by which the centre of gravity of the economy shifts from agriculture to industry[7].

Rapid industrialization will greatly strengthen agriculture. It will create a demand for a raw material and other agricultural products, besides providing cheaply several essential needs of the agriculturists. In the absence of industrialization, therefore, agriculture cannot reasonably be expected to improve[8].

Industrialization has major role to play in the economic development of the under developed countries.[9] Industrialization acts as an instrument both of creating capacity to

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[4] Pei-Kang Chang,Agriculture and Industrialization ,p-69
[5] Kuchhal S.C.. The Industrial Economy of India, Allahabad, 1969, pp-1-2
[6] Ibid., pp. 1-2
[7] Dingra I.C. The Indian Economy, p-454
[8] Kensal Krishan Dewett and Varma J.D. Elementary Indian Economy, 1970, p-15
[9] Datt R and Sundaram K.P.M.,Indian economy,S.Chand &CO. (Pvt).Ltd.,New Delhi,p-550

absorb excess labour power and of catering for the diversification of the market required at higher stages of economic development[10].

"Historically, industrial development has proceeded in three stages.

Stage -I- Secondary industry is concerned with the processing of primary products: Milling grain, extracting oil, tanning kather, spinning vegetable fibres, preparing timber and smelting ores.

Stage-II- The evolution of secondary industry comprises the transformation of materials, making bread and confectionery, footwears, metal goods, cloth, furniture and paper.

Stage-III- The manufacture of machines and other capital equipments to be used not for the direct satisfaction of any immediate want but in order to facilitate the future process of production[11].

Historical Background

In 1707A.D Aurangzeb died and that was the beginning of the end of the Mughal Empire, which gave India one of its brightest periods of history[12]. But during the Mughal period, India had a considered variety of arts and handicrafts which indicated a more advanced economic and financial organization than the crafts of contemporary Europe. In several handicrafts specialization of jobs had advanced to such as extent that particular classes of artisans undertook district process in the chain of production. The products commanded wide foreign markets. Artisans worked on their own account as well as in Kharkhans under master artisans dealers and financiers. In the 17th century India was hub of world commerce and the magnet of world precious metals. The European merchants merely acted as intermediaries of traffic in the artisans good that found their way to Europe

[10] Datt Ruddar & Sundaram K.P.M. Indian Economy, p-551
[11] Ibid., p-551
[12] Desai T.B. Economic History of India under the British 1757-1947 P-1

through the Egyptian Port or by the newly opened sea route via Cape of Good Hope. At that time neither Portugal nor Holland nor England produced much that could be imported in India an exchange for cotton and silk goods and saltpere that were in world wide demand. Europe had to pay mainly in billion for the increasing volume of Indian exports. At a time when the west of Europe, a birth place of modern industrial system was inhabited by uncivilized tribes. India was famous for the wealth of her rulers and of the high artistic skill of her craftsmen[13]. And even at a much later period when the merchant advent adventures from the west made their first appearance in India industrial advancement of this country was at any rate, not inferior to these of the move advanced European nations[14].

The European trade in India cotton goods grew up at the beginning of the 17 century as a subsidiary industry for meeting the requirements of the markets in South East Asian countries which supplied spices to the European markets. Gradually Indian cotton goods found favour in European markets as well and the Dutch, the French and the English all began to buy considerable qualities of cloth, silk, indigo and saltpetre. In the beginning of the 18th century the English obtained from Furrukseer great grand-son of Aurangzeb a firman or grant exempting their trade from all duties and this was the commercial character for the Britishers in India. But after the death of Aurangzeb the whole country was left in a state of chaos and confusion. The forces of disintegration began to assert and consequently the central authority was weakned. The history of India till the establishment of British power was a confused tangle of internal rebellion, civil wars and foreign invasions. English merchants stepped into the breach caused by the downfall of

[13] Kuchhal S.C., Op. Cit., p-5
[14] Report of the Indian Industrial Commission, 1916-18, p-6

the Mughal Empire. During the period of transition from Mughal to British Supremacy it was difficult to treat India as an economic unit. There were four great European competitors for the Indian trade who differed from one another greatly in their approach and backing.

1. The Portuguese displayed an aggressive and intolerant spirit which combined with their European complications bought about with their decline in the East.

2.The Dutch turned their attentions to the far East and in the 18th century they ceased to be serious competitions to the English in India.

3. The English East India company, which came into being in 1600 was wholly different in character by the crown entrusted with the monopoly of the Eastern trades. The state took no other part in its formation[15].

4. The French East India company owned its origin to Louis XIV and had little backing from either aristocracy or the French business community. Gradually independent Kingdoms multiplied, arose and fell: and there were war and disorder, uncertainty and insecurity of life and prosperity all of them obstacles to economic progress[16].

In 1757 the British won the Battle of Plessey in Bengal and it is the beginning of the next great-empire in India. Thus the British came to India to trade with her. They had three chief establishments at Bombay, Madras and Calcutta, each with a council under a President. These came to be known, therefore, as the Presidencies. In 1773 the British Parliament passed the Regulating Act, which gave parliamentary title of the company's administration in India. The Charter Act of 1813 abolished the Company's monopoly of trade with India, so that private British citizens also trade in India. During the last decade

[15] Kuchhal S.C., Op. Cit., p-4
[16] Ibid., p-5

of the company's rule, there were epoch-making developments here and abroad. The abolition of Corn Laws in England from 1849 ushered in free trade in Europe and it was forced on India too. Gold was discovered in California in 1848 and in Australia in 1850. This was helped by the great development in the means of transport and communication. Ocean steamers were improved, in the 1850s the new public works department of Dalhousie built modern roads, which spread rapidly in the 1860s and so did the railway which began with the first time of 1853, post and telegraph facilities were extended. These developments added economic unity to the administrative unity introduced by the British cultural unity. The opening of the Suez Canal in 1869 was very important for the development of economic activities[17].

The first small political advance under the crown came through the Indian Councils Act of 1861, which sowed the seeds of representative legislative. This element was substantially enlarged only in 1909. The Indian National Congress was founded by an Englishman in 1885 but its aims and programme were mild. The situation was however transformed overnight by the partition of Bengal by Lord Curzon in 1905. The partition of Bengal sparked off a vigorous and countrywide agitation. The programme included boycott of British goods and encouragement to Swadeshi products and was therefore known as 'Swadeshi Movement.' Thus came the Act of 1909 which is known as the Morley -Minto Reforms.

The 'Small Sector' as the name implies, consists of small-scale industries following Dhar and Lydall.

We can divide the small scale industries into following three categories viz.,

a) Cottage industries

[17] Desai T.B., Op. Cit., pp 2-3

b) Agro-based industries

c) Small industries

a) Cottage industries

Cottage industries are generally associated with agriculture and part-time and whole time occupation in rural and semi-rural areas. In other words a cottage industry means those industries and crafts which are carried on generally in the home of the artisans. He is usually assisted in his work by the members of his family. It may be a whole-time work or, if he is not an artisan but a cultivator, he may be carrying on this as a subsidiary occupation during his spare time. No power is to used in the cottage industries and the tools and implements used are also simple. Such as Hand-Spinning Handloom-Weaving, Toy-Making, Rope-Making, Durri-Weaving, Wood work etc[18].

b) Agro-based industries:

These industries are based on the processing of agricultural produce, or they cater to the output needs of the agriculturist. Agro based industries may be organised on a

i) Cottage scale

ii) Small scale

iii) Large scale[19]

c) Small-scale industries:

In small-scale industries there is a use of power and small machines and employ a small number of workers. These are divided into two categories:

1) Traditional small industries

2) Modern small industries

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[18] Dhingra I.C., Op. Cit., p-554

[19] Dhar P.N. and Lydall H.F.: The Role of Small Enterprises in Indian Economic Development, New Delhi, 1962, p-12

i) Khadi and other village industries, handloom industry, sericulture, coir industry and handicraft etc. are examples of traditional small industries.

ii) Modern small industries using power, employing hired labour and with investment in plant and machinery.

Ancillary industries are those which manufacture parts, components or intermediate products or render services like repairs[20].

In the large scale industries following industries are mention.

1) The coat and petroleum industries

2) The iron and steel industries

3) The engineering and allied industries

4) The chemical industries

5) The cotton mill industries

6) The jute industries

7) The minor textile industries

8) Plantation industries

9) Miscellaneous large-scale industries

The Minor Textile Industries:

In minor textile industries of India include the woolen silk and hemp industries none of which was organised on a scale comparable with that of the cotton and jute industries. The woolen industry comprised in 1914 some six mills only. Indian-grown wool was mostly of very poor quality, short-stapled and without felting qualities, so that it is only suitable for carding and the manufacture of blankets, rugs, carpets, felts and other coarse articles. Raw wool was imported into India as well as exported as long stapled raw wool

[20] Dewett R.K., Indian Economy, 1992, p-194

(from Afghanistan, Tibet, Australia and the Cape and Persia) was needed by the mills of the united provinces and the Punjab principally at Cownpore and Lucknow. The war demand for cloth gave a great stimulus to the industry and restriction was placed on the export of raw wool in the interests of manufacturers executing army clothing contracts[21]. Hence the number of mills working in British India rose from six to twenty one in 1935, in addition to five mills in Indian (Native) states[22].

The Indian silk industry really consists of two separate industries in which progress is practically independent, namely Seri-culture or the growing and reeling of silk and silk-weaving. Both Seri- culture, which may be regarded as an agricultural occupation similar to be keeping or poultry farming and silk weaving must be numbered amongst the indigenous industries which declined towards the end of the nineteenth century owing to the growing competition of imported reeled silk and machine-woven silk goods. The quality of the product in India was very defective. The Mulbery silk worm first imported into India from which Most of the silk is exported either raw or reeled and owing to bad reeling the tendency has been to an increase in proportion of raw silk exported and exported since 1913-14.[23]

The chief silk-weaving centres are Mushidabad, Tanjor, Banaras, Surat, Amritsar, Chingleput, Madura and Manalay[24].

Miscellaneous Large-scale industries:

[21] Veera Anstey, pp-282-283
[22] Ibid, p-283
[23] Ibid, p-284
[24] Ibid, p-284

The industries concerned include rice and flour-milling, sugar pressing and refining, cotton ginning and pressing, jute pressing, tanning and leather works and manufactures of sellac[25].

Modern large scale concerns are also found in the printing, brick and tile and tobacco industries and in various enterprises[26].

The so-called "key" industries may be defined as those which although of minor quantitative importance produce goods essential for continuance of production by the great staple industries. These include the manufacture of accessories (such as roller skins, pickers, belting etc.) implements and spare parts necessary in the various machine-using industries and group of miscellaneous industries, such as the manufacture of anti-friction metal, Ferro-manganese glass, pottery, refractory bricks, disinfecting fluids, tea punning knives, tea chests, asbestos, boiler composition glucose and graphite crucibles. All those miscellaneous industries gradually developed[27].

The First World War and its effects on industries of India

The war exposed the extreme weakness of India's industrial position and her under dependence on foreign supplies for iron and steel goods, machineries, stem engines and boilers, railway rolling stock and materials and chemicals of various kinds. All these essential supplies were abruptly cut off by the war. The pre-occupation of the Allies with the war and the shutting out of the countries, which were substantial importers of Indian primary products, like Germany and Austria, and the shortage of shipping and railway wagons occasional by the exigencies of the war for transport of troops and ammunitions, dislocated the industrial and commercial advance of the country temporarily. Markets for

[25] Ibid, p-285
[26] Veera Anstey, Op. Cit., p-289
[27] Veera Anstey, Op. Cit., pp 289-293

rice and hides were dislocated; the aluminium industry of Madras received a set-back on account of the stoppage of aluminium imports from abroad; the railways suffered; in equipment and factory industries in general could not expand for want of machineries and essential materials. The storage of the tonnage and wagons was felt more acutely by agricultural products then manufacturers or minerals, the position of which was strengthened by their brisk demand during the war. Only export industries were adversely affected, the cotton, coal, manganese etc., suffered a temporary set back at the outbreak of the war. On the other hand, it made the British Government realise its follies in adopting an attitude of apathy and indifference towards India's industrial advance. The military importance of the development of Indian industries was emphasized by the brilliant part played by them in essential supplies to the eastern theatre, if they had been organised and developed on modern lines with Government assistance in many ways. The modern munitions of way cover such a long range of commodities produced by an industrially advanced country that the development of the rich and extensive natural resources of India is a matter of almost military necessity. The war therefore, by creating an enormous demand and high prices for raw materials and food-stuffs, which India could supply to the Allies, reacted very favourable on her export trade, and the balance of trade in India's favour increased from an average of Pound 53m to pound 60 m. The lack of usual imports from Europe provided an excellent opportunity to the Indian enterprisers and capitalists to launch new enterprises like cotton, iron and steel, wool, mining and metallurgical and leather factories etc. The insistent demand of the war zones for iron and steel, woolen and leather goods stimulated their production, while to meet the internal demand the cotton industry expanded very much. The jute industry also advanced rapidly

to meet the increased demand for gunny clothes and sacks. But unfortunately, thanks to the policy of the Government, India was not in a position to take the fullest advantage of the extremely favourable situation for the advance of her industries, and the result was that, in place of Japanese industries captured and glutted the Indian market and succeeded in building up an extensive export trade in India during the war and the post war period. The limiting favor in India was not only lack of machinery and essential materials, but also, of expert technicians and chemists, shortage of skilled labourers, of coal and coking plant, and of transport accommodation on railways and ships, and of an organised financial and capital market and adequate banking and credit facilities[28].

The Industrial Commission under Sir Thomas Holland appointed in 1916, so that the government could help the development of industries. In order to remove the deficiency in the matter of industrial development and to make India self-sufficient for essential supplies, the Commission recommended direct and active help by the Government to industries by organisation of technical and scientific service for industrial and chemical researches, by provision of technical and industrial education and commercial intelligence, by the creation of a Stores Purchase Department and establishment of Provincial Department for co-ordination. In 1917, the Indian Munitions Board was established, which played an important part in pushing the production of such materials, as were required by the Allies for the successful prosecution of the War. The main purpose of the Board to control and development of such Indian materials and industries as supplied the war with its sinews, the limitation and co-ordination of the demands for imported manufacturer and products and the application of manufacturing processes for war purposes to reduce the demands on shipping. But, in many ways it fostered the

[28] Srivastava C.P. Modern Economic Development of India, Vol. II, 1951, pp 10-11

growth of several indigenous industries by purchasing a large quantity of indigenous products and materials, by distributing quotas of all orders from Allias under Home indents and priority certificates to Indian manufacturers, by helping individuals and firms in importing plant experts or skilled labour from abroad and by supplying of necessary technical information and advice to new enterprisers establishing new industries. As a consequence of this policy, cotton, jute, iron and steel, leather, woolen, engineering, chemical mining, paper, glass, cement cutlery, paints and varnishes, surgical instruments, oils and fertilizers were given a great impetus[29].

During the war period there was a general rise in prices, which began at the outset of the conflagration and continued till 1921. During this period up to 1917, agriculture felt prosperity although, the Government control of prices of food-stuffs and raw materials did not allow them to raise experts in case of raw cotton, as fast as they would have been. But the prices of certain imports like Kerosene, Cloth, Sugar metals and salt rose very high. The internal prices and exports of food-grains to the Allies were rigidly regulated by the Government, and therefore exports of food-stuffs were very low during the war. After the Aronistice in 1918, the exports of food-grains were allowed only to Ceylon, and Straits Settlements, and a scheme for a proportionate distribution of provincial surpluses was also brought into force. The severe famine of 1918-19 and that of 1920-21 led to imports of wheat from Australia and rice from Burma in very large quantities, and the abnormal rise in price of wheat caused the reimposition of embargo and imports of foreign wheat. The abnormality and disparity in rise of prices of export and import products resulted in lootings of the markets in many parts. Heavy fall in exports of oil-seeds except linseed, which was brought more by U.K. than by foreigners, was registered.

[29] Ibid, p-13

Increased freights and contraction of demand from the continental countries both allies and enemies, were the chief causes. The reduction in exports and less consumption by the local mills depressed jute prices[30].

With the general rise in prices, the profits of industry increased rapidly and stimulated their further development. The stringent Government control over all economic activities during the War affected different industries in different ways. Large purchases of government at fixed prices encourage and spelt the prosperity of jute, mica, manganese, tea, woolen and iron and steel industries, whereas in case of coal, not only the supply and distribution of coal to various industries through the Coal Transportation Officer was strictly regulated, but exports were also embargoed or prohibited. The industries were not only stimulated by high prices of their products, but also by the relatively lesser rise in prices of raw materials and wages. The difficulties of getting materials and other things improved the position of the existing producers[31].

The exchange and currency difficulties of the Government during the later part of the war since 1916 had very important repercussions on the industries and trade of the country. The abnormal rise in the rate of exchange put a premium on imports and discouraged exports in general but the immediate effect of decontrolling exchange was not very adverse to the foreign trade of the country, because the enormous expansion of currency, brisk trade and the famine of 1918-19 caused a heavy increase in prices and after the armistice.There was very keen demand for the primary products of India from outside. The immediate post-war price boom encouraged the exports of hide and skins, jute, oilseeds, lac, dyeing and tanning materials and yarn-raw materials which constituted the

[30] Ibid, p-13
[31] Ibid, p-14

bulk of export trade of the country; while an impoverished Europe after a long and protracted exacting war, could not maintain the imports of manufacturers in India, which formed the bulk of its imports. The impossibility of prompt deliveries of imports turned the balance of trade in favour of India (1918-20)[32].

By the close of the First World War, the dye was cast for an unprecedented boom. The excepted keen demand for all kinds of products rapidly rising prices after 1918[33].

In spite of the banking crisis, which began in 1913, the number of joint-stock companies in British India increased from 2,681 in 1913-14, with a paid up capital of about 76 Crores to 2,713 in 1918-19, with a paid-up capital of about 106 Crores, and to 4,781 in 1921-22 with a paid-up capital of about 223 Crores. But it is more striking to note that 905 companies, with an authorised capital of about 275 Crores in 1919-20, and 965 companies, with an authorised capital of 146 Crores in 1920-21, were newly registered in India. Thus between 1919 and 1921, the number of companies increased by 75% and the paid-up capital more than doubled, and although during the war, the difficulties of importing machinery and plant, mill stores and technical experts prevented the rapid mounting up of the number of companies, the paid-up capital of the existing companies increased considerably[34].

The Second World War had opened a new chapter in our industrial history and again caused a feverish activity in production and sale. There was increased employment; rise in prices, heavy profits, company floatation and extensions, large government orders and all industries and trades were considerably toned up. The war Supply Departments and the Industrial and Scientific Research Committee, the export Advisory Council etc. did

[32] Ibid, p-14
[33] Ibid, p-14
[34] Ibid, p-15

their level best to encourage the industries, although the shutting out of Europe to the deprived the export trade of a very valuable market. During 8 months of the War ending November, 1940 the export to European countries declined from 13.52 lakhs in 1939-40 to 6.08 lakhs and the exports to Japan and Egypt in the same period fell by 2.65 and 300 lakhs respectively. On the whole, however, export trade increased by 870 lakhs on account of greater intakes of American countries. Raw cotton, wool and jute, sugar, rice, coffee, hides and skins and groundnuts received a set-back. But the exports of cotton price goods, twist and yarn, jute, gunny bags and cloth and tanned hides and skins increased. The price control Boards all over the country did not allow the rise in prices to go very high.

In fact the war had given a momentous stride to the development of industries in the country. By cutting of imports it provided a sheltered market to the nascent and old industries and rendered protective duties unnecessary. And many new industries grew up the government had recognised that the scope of industrialization should have no limits and that the pace of industrialization should be sufficiently accelerated at all costs. The Government should not have only cared for the immediate needs of the war but should have launched a comprehensive plan off all-round industrial development to enable the country to take a big pioneer stride forward so that India might attain industrial self-sufficiency in spite of a co-ordinated imperial war effort. For a second time a titanic conflict had provided a unique opportunity to India to industrialize her economic structure and stoppage of export of her raw materials had afforded a very good chance to develop scientific and industrial research to utilize them within the country. The stoppage of imports of many commodities essential for our economic and industrial life, like

machinery and chemicals and even for our health, like medicines and drugs etc., should have been seized to manufacture them within the country. From this point of view the establishment of the Board of Scientific and Industrial Research had been welcomed on all hands and it was gratifying to note that the Board, while concentrating on immediate war needs took a long term view to plan a programme for meeting the industrial engines, air crafts and ships, etc. had been planned and it was expected that with the deliberations of the Eastern Group Conference being over its headquarters established at Delhi. India would become the chief industrial centre of the East. As a result of the Chatfield Committee's Report to manufacture modern armaments a four crore scheme for expansion and the whole resources of His Majesty's Government had been placed at the disposal of the Government of India for planning special factories. But most of this planning depended upon the demand of the British Government within 8 months of the outbreak of the war the monthly output of these factories increased by 7 to 12 times their peace time production. The Army clothing Factory at Shahjehanpur produced 3 to 4 times its pre-war planned output. The number of employees had increased from 800 to 10,000 and 14 miles of cloth was used daily in preparing uniforms. New clothing factories had been opened in Bombay, Madras, Calcutta and the Punjab. In fact more than 90% of the war requirements of India and 20,000 new articles for the army (rifles, machine-guns, saddlery, blankets, clothes, artillery and propellants) were then manufactured within the country. India had accepted large orders for the supplies of these things to Singapore, Hong-Kong, Egypt, the Middle East and U.K. and other countries. From eleven countries of the Empire the Supply Department had received in 1940 orders for 5,00,000 yards of khaki shirting's, fish plates and slippers for railways, coal, rolled steel joists, steel tanks

and staging, tents, materials and an order for boots worth Rs. 1 crore and 125,000 pairs of boots per months were being supplied. Palestine and Egypt had place an order for Rs. 40 lakhs for fabricated steel buildings and Egypt again for 2,300 electric fans. She had sent overseas 100 m rounds of small arms ammunition and 4 lakhs of gun ammunition 1,000 sandbags, 1 m pair of boots, 30, 00 tents, 1.25 lakhs handloom army blankets. To push the manufacture of aircraft the Government of India decided to place an order for 50 planes with the air-craft factory at Bangalore in Mysore State and paid in advance Rs. 2½ Crores for this order. The Government was also encouraging through research and technical advice the development of drugs, chemicals, lubricating oils, and glass-manufacturers through the Industrial Research Bureau and Council and through the Drugs Supply Committee. A separate industrial research fund with an annual grant of Rs. 10 lakhs for five years had been created since 1941. A scheme for training 15,000 technicians as recommended by the Sergeant Committee during 1941 to man the expanding war industries had been adopted and facilities were provided for training them in training institutions in India and in factories in the U.K. under the Bevin scheme. About 400 training centers had been established in the country and one lakh hands had been trained in them. These schemes however ceased after the World War II. The reports of the metals committee, Fuel Research Committee and the Cellulose Research Committee had been considered by the Board of Scientific and Industrial Research had approved. Metallurgical research had been centralised at Jamshedpur, while fuel research was to be conducted in its various aspects at Jamshedpur, Dhanbad, Calcutta and Ducca. An Industrial Research Utilisation Committee of industrialist with the commerce member as the head had been set up to advice the Government as to the best means of utilising the

result of researches of these committees as also of the Imperial Seri-culture and Woolen Industry Committee. The Industries Conference at Lucknow and the Export Advisory Council at Lucknow and the Export Advisory Council at Calcutta had suggested the sending of trade delegations to Africa, Australia, South America, East Indies and New Zealand the old ones. The post-war reconstruction committee and the consultative committee of economists had also been set up. It was essential that the new industries that were then growing, as a result of the War and the Government encouragement, should be protected against foreign competition when the war was over. The increase in taxation surcharges on incomes and excess profits duty etc. had been resented by the business community, as also the dismantling of a few branch lines of railways. The Department of supply alone placed orders with Indian industries for goods worth Rs. 56 and Rs. 76 Crores respectively in the first and second years of the war, while overseas orders exceeded Rs. 160 Crores.

The Roger Mission and the Eastern Group Supply Conference distributed the war orders among the belligerents countries within the Empire and only a few products requiring no superior technical skill or practice were assigned to factories and industrialists in India. The American Technical Mission under Sir Henry Grady pointed out that, while War production had a fairly good start in India, it must be developed very much further if she was to become the arsenal of the middle and near East. The mission therefore recommended the establishment of Government and industrial organisation for war adequate to secure the effective co-ordination of India's production and maximizing war

output. A number of technicians and production executives would also be sent from American to help the production of materials essential for winning the war[35].

In spite of the tremendous fillip given to the industrial development of the country, the industries had been handicapped in their advancement by lack of adequate machinery, stores and accessories of heavy chemicals and of exports and technicians while recession of prices due to the loss of European markets for agricultural produce reduced the purchasing power of the masses before 1941, and contracted the home market. The markets for manufacturer in Burma and the Far Eastern countries had also been lost, while restrictions on exports and exchange control, shortage of shipping and increased freights, shortage of rail accommodation and coal had also hampered their development. Moreover as pointed out earlier, the financial burdens, increases costs due to dearness allowances, higher price of raw materials was risk insurance etc. had been further handicaps. Steel iron and steel, cotton, jute, leather, woolen, sugar paper; cement and chemical industries had benefited. The small and cottage industries had also benefited greatly. And chemical industries aluminium, machine tools, engineering, ship-building and aircraft had come into existence. A production Department of the government of India should have been established to accelerate the pace of industrialisation to serve the ends of war and peace. The supply Department plans to establish a first line machine – tool industry in India had been further advanced by the arrival of two senior technical experts from Britain- Mr. S. Oldfield and Mr. T Rubshaw. The scheme envisaged the production of 100 to 125 high-class machine-tools per month from s from alone. The target for the whole of India was 500 machines per month which would be made up of

[35] Ibid, pp 19-24

first, second and third grade tools. India's the then production a war industry was some 275 machines a month[36].

On the eve of the Second World War our country had reached self-sufficiency in production of cloth, sugar, cement, iron & steel, matches & paper, except newsprint & occupied, as pointed elsewhere, the eight positions among the industrialised countries of the world. The war toned up these industries and ushered into existence news ones.

To foster industrial production the Industries conference in Dec. 1947 suggested that transport facilities should be improved by fullest use of all forms of transport – road, inland waterways, railways and air transport[37].

Agricultural and Forest Products

Almost 34 per cent of the total area of British India is sown with crops. The universal food crops of India are cereals and pulses. Rice is the most widespread, being sown over 78.5 million acres and is the staple of all low-lying, well-watered tropical districts, such as the lower Gangas, Parts of Assam and Burma, the coastal strips adjoining Karachi and Bombay, West Malabar, the deltas of the Madras Presidency and some districts of the Central provinces. Wheat is a staple food crop in a great part of the Punjab and North West provinces and since the second half of the nineteenth century is cultivation has been extended over a large part of Northern India. The millets of the most important are Jowar, Bajra and Ragi are the staple food stuffs in areas which are too dry or unfertile for rice or wheat. Barley is grown in the United Provinces and Bihar. Oats in the Punjab and the United Provinces, and Maize which was introduced by the Portuguese from America is cultivated in garden plots all over India. Such cereals pulses and small quantities of

[36] Ibid, p-25
[37] Ibid, p-26

supplementary vegetable and garden produce for the main diet of the rural population. India is probably the home of the sugar cane, which is cultivated over a very wide area. India also produces valuable condiments and spices, such as pepper, chilies, ginger, cardamoms, betel-nuts, cinnamon and claves and has valuable foods crops[38].

The raw materials of India include oilseeds the various fibers, forests and miscellaneous products. Oilseeds are cultivated all over India the most important being sesame, linseed, caster-oil, ground-nut, mustard and rape their production increased immensely during the nineteenth century, and they form one of the greatest exports. The oil is extracted and used in the dying and leather industries, in candle and soap making, for points ointments and perfumery for the manufacture of "wax cloth" (a water proof material) and for the production of ghee of the fibers, cotton is far and away the most important. From the earliest times India has been famed for her hand-spun and hand-woven cotton goods which have always formed the chief clothing of the people. Jute was hardly cultivated before the second quarter of the 19th century, but since then it has been grown and exported either raw or manufactured, in rapidly increasing quantities. The cultivation and manufacture of silk became important in India during the seventeenth century before which it was imported from China. By the end of the nineteenth century, however the Export of Indian Skills and woven silk goods had again declined owing to the completion of the machine products of Europe and the Far East[39].

The principal plantation products are tea, coffee, indigo, rubber and cinchona (quinine) but none of these are not grown over a very large area, nor are they grown as part of the ordinary agricultural system but form special crops mostly under European control.

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[38] Veera Anstey, pp 17-19
[39] Ibid, p-19

Tobacco is grown on small holdings in various parts of the country being sown over about one million acres. The opium-yielding poppy widely cultivated both in certain districts of United Provinces and Bihar and in certain central Indian (native) states.

The Forest of India provide not only useful and valuable timbers, but a great variety of gums, resins, drugs, dyes and tanning materials which are manufactured both for the internal markets and for export. For instance, lac- the resinous exudation of certain small insects – is utilized as a dye, for sealing-work and as a varnish. Safflower and Turmeric are also used as dyes. Cutch, Gambia and Robalan were the dried fruit of various trees are the principal tanning agents. Catecha, or "Pan Supari," which consists of the betel-nut (the fruit of the areca-palm or "areca catechu) in conjunction with the leaf of the betel vine, some lime, and clove or nutmeg, is an important products, which forms the universal masticatory of the East[40].

Mineral Wealth

India has a vast store and a great variety of mineral products. The chief mineral products of India are coal, manganese ore, gold, salt, iron ore, mica, salipetra, and monazile, whilst Burma produces petroleum, lead, silver, copper zinc, wolfram and rubies. One of the outstanding contrasts between the course of industrialization in India and in the west of that in India the large scale production of coal and iron has followed large-scale textile production and transport development instead of procuring it. Petroleum is another important factor for the large-scale production. Petroleum is found in two areas of folded rocks at either end of the Himalayas, i.e. in the Punjab and Baluchistan to the west and in Assam and Burma to the east. Salt is obtained in India from four main sources, in addition to imports. Rock salt is obtained from the salt range and Kohat mines of the

[40] Ibid, p-20

Punjab and brine salt from the Sambhar Lake in Rajputana, the Rann of Cutch and the sea salt factories in Bombay Madras and at the mouth of the Indus. About one-half of the salt produced in India is manufactured by Government agency and the remainder under licence. In India Gold work was old, but the Mysore Works fallen into disuse before modern times. Large scale operations were started under European auspices and management in the Kolar gold-fields (Mysore) in 1880 and had become firmly established on a sound footing by 1855[41].

Iron-mining has necessarily been dependent upon their iron-smelling industry in India. During the nineteenth century cheap imported iron and steel goods practically stamped out the indigenous industry. The utilization of surface deposits of iron are near the Raniganj coalfield that led eventually to the establishment, by Government enterprise of the successful Barakar Iron works in 1875, in which coal was utilized for smelting purposes. In the twentieth century rich deposits were discovered in Orissa and the establishment of the Tata Iron and Steel Company in 1907 led to far-reaching developments. The production of manganese began in 1892 in Vizagapatam, and increased rapidly after the opening up of the high-grade deposits of the central provinces at the end of the century lead and silver are produced in rapidly increasing quantities in the Shan states. Zinc and copper have assumed a position of importance only during the last sin or seven years. Monazite deposits were discovered in Travancore in 1908-09 and were exploited at first by a German firm which shipped the concentrates to Hamburg. The preparation of magnetite, which is at present produced chiefly near Salem (Madras) for use as a refractory material and for the manufacture of cement, flooring, tiles, bricks for furnace linings and Epsom salts, is still very limited but might be considerably

[41] Ibid, p-41

extended. These are the chief minerals industries that have so far been developed on a commercial scale of India[42].

Development of Industries in India

Cotton and jute mills were started in the early 1850s and they remained our foremost modern industries. The next decades divided into different periods, which mark different stages in industrial growth.

I) 1860-80. The beginnings; In these two decades new important industry was coal-mining which made steady progress during the period. The other two industries which were together had 70,000 workers and they too registered steady progress, except for cotton before 1870. The Madras tanning industry developed a prosperous export trade in hides and skins to the U.K. and (later) to Germany. But, handicrafts decreased rapidly in importance, and the artisans thus thrown out could not be largely absorbed by the few new industries. Thus there were only beginnings of modern industry.

II) 1880-95. Real Progress: During the next fifteen years i.e. from 1880 to 1895also handicrafts continued declining while no new industry was started which could be called a major one. But the established industries progressed rapidly; the number of workers in the three major industries increased form less than one lakh to 2.6 lakhs.

Small Scale Industry: There were the processing industries cotton and jute presses were started, as also rice and timber mills- the last mostly in Burma. There were the subsidiary industries like engineering workshops and iron foundries, which arose from the growth of semi-factory industries, Madras tanning was the most important. It was a purely export

[42] Ibid, pp 25-28

industry, very prosperous and showing a large increase in exports. The other notable industries in this group were brick and tile factories.[43]

III. Third Stage. (1895-1914): Progress begins all over India. There was a serious sat back to industries in 1895-1900 because of famines. Cotton was depressed up to 1905, but jute progressed rapidly. The minerals too made rapid progress, especially coal and the two minerals which were almost new, viz. petroleum in Burma and manganese in Madras and the Central Provinces. India becomes the largest produce in Mica.

But this large growth in minerals was very small compared to our needs, so imports were far greater than our production. Further the growth was one-sided; there were no manufacturers from minerals. Of the six important minerals, four were consumed directly viz. coal, petroleum, gold and salt; the other two were exported mica and manganese. The only successful attempts to produce iron was at the Barakar works and the Tata had jute began production in 1911. Thus there were almost no metallurgical industries a serious handicap to industrialization.

Small Scale Industry: There was a good deal of progress in the processing industries. The rice mills spread into India particularly into Bengal and Madras; and flour and oil mills also grew in number. Among the subsidiary industries, there was in increase in engineering and railway workshops and in iron foundries. The factors responsible for this increase were extension of railways and use of cycles, motor cars and tramways, and of workshop motors and water pumps. In the semi-factory type, Madras tanning was now decaying due to the discovery of chrome tanning in America. Madras now exported raw hides and skins in increasing amounts.

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[43] Desai T.B .,op.cit p-87

The line of development was similar to that in other countries. The beginning was made with industries producing consumption goods, cotton and jute. The reasons for this choice are obvious. They do not involve complicated processes, special skills or huge amounts of capital; the markets already exist within the country and the period of waiting is not long. The only notable change was the development of three types of small scale industry. Some deficiency effect the industries. These deficiencies were capital, labour power metallurgical industries, railways and government policy and market. [44]

IV. 1914-29: The First World was very favorable to industrial growth; and especially during the post-war boom (1918-20), and many new enterprises were started. But, 1920-22 saw an acute depression, followed by low economic activity. Chiefly due to currency policy; this condition continued right up to the great depression of 1929. With Post-war the prices and industrial profits rose rapidly, which also stopped foreign competition for some industries. Thus the prices of manufacturer increased, while those of raw materials rose much less and wages increased little. The end of the war brought an immediate increase in demand for all sorts of goods. During the post-war boom, prices rose rapidly and there was extra-ordinary industrial prosperity. [45]

1920-22 Depression:

During the boom wages and other costs also increased substantially, machinery ordered at boom prices arrived during the depression. It also increased productive capacity at a time of falling demand. Acute exchange difficulties intensified the trouble. Again, most of the growth was not healthy and huge dividends were paid without adequately strengthening the reserves. Many unsound concerns were therefore wiped-out.

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[44] Ibid
[45] ibid

There was much growth in the large industries, but the main features of the situation charged little; e.g. organized industries employed less than one per cent of the population. The results of India's growing industrialization since 1914 can be seen in the changes in the composition of her foreign trade. There was some improvement regarding our industrial deficiencies also. Capital became bolder, so there were large investment facilities. In industries like tea and jute, the share of Indians increased. But a large part of industry was still controlled by external capital and it shared and benefits of fiscal protection. Efficiency of labour was low, but it improved a good deal in this period. There was also satisfactory progress in training foremen and supervisors.[46]

Metallurgical industries, fuel and power:

Most progress was made in the iron and steel industry; it was definitely established. But the other metal, and chemical, industries did not flourish.. The more important problem of power was not solved. A large amount of hydro-electric power was produced in certain areas, but not at all as cheaply as expected. A large part of it was supplied by the Tata companies to the Bombay area from 1915.

V. 1929-39: The Great Depression:

The Depression did not have the same effect as in many other industrial countries, e.g. production in the major industries did not fall so much. One reason for this situation was the large part played by handicraft industry in India even at that time. The fall in the farmers' income affected, therefore the handicrafts rather than the factories. There were also protective duties; and the 'Satyagraha' movement of the early 1930s encouraged the use of Indian products.

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[46] Ibid p-90

VI. 1939-47: The war and after new factors: The war created a far more urgent demand for industrial products than the First World War. There were several new factors in the situation like the fall of France, bombing of British factories, large-scale sinking of British ships,Japan's victories in the East; and in India, hyper-inflation and seller's market. [47]

Production effect

The result was considerable increase in industrial output in India, in cotton and jute, in coal, iron and steel, but particularly in certain new lines. Many new engineering and chemical industries were started. There were some 250 trade workshops and two dozen railways workshops, producing about 700 different items of muritions Dozen of firms were also licensed to produce lather, machines and machine-tools; hundred of new items of engineering stores were manufactured. The Hindustan Aircraft Company at (Banglore) assembled the first plane in 1941. A heavy chemicals industry was started, producing sulphuric acid, caustic soda, bleaching powder etc. These industries were thus trying to make up some glaring deficiencies in our industrial equipment. The growth in the production of manufactures increased the value of their exports, as in the proceeding period, and also the number of factory workers.

But the difficulties of importing machinery as in the First World War, led to multiple shifts and tremendous overworking of existing equipment. It was therefore, urgently in need of repairs and replacements; it had also become out-of-date. There was further, a neglect of long term factories like proper location, scale of production, search for future markets and sound financial organization .

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[47] Ibid, pp-91-92

1945-47 (Critical years): These neglected factors made themselves felt after the War. Even before its end, production was falling to fall further and continued to be much below capacity in most industries. The partition of the country disrupted the whole-economy; in particular, it had a serious effect on India's jute and cotton industries, which lost large sources of their raw materials. The developments since them are too many, varied and vital to be compressed in a few words.[48]

General Surveys in India

Industries received a great stimulus in 1914-29.during the war and post-war boom. But the main features of the industrial situation remained more or less the same. The deficiencies in our industrial equipment were however, removed to some extent by 1929. The outstanding event of the next period was the Great Depression. But it did not have crippling impact that was felt elsewhere then came the Second World War, which was on even greater stimulus than the First War. The industrial deficiencies were made up to a larger extent, through the production of heavy chemicals, machines and machine tools. But some of the mistakes of the First War were repeated. These and the partition made the post war years a critical period for our industries. [49]

Government Industrial Policy:

The East Indian Company's policy was one principal factor in their decline. The policy under the Crown was similarly a major explanation of the backwardness of our factory industry. During the East India Company's rule; several measures were taken to discourage our industries and to encourage the sale of India of British manufacturer. In 1769, for example, the company's Directors ordered the encouragement of the production

[48] Ibid, p-92
[49] Ibid,p-94

of raw silk in Bengal and the discouragement of the production of silk factories. In the same year, silk winders were forced to work in the company's factories under severe punishment. In 1813 when the company's charter was renewed, parliament inquired into how Indian industrial products replaced by the British; and British manufactures were forced on India through the Governor General and Commercial Residents.

On the other hand, Indian handicraft products were shut out from England by prohibitive tariffs. 67% was a common level of duties and there was a case of 400%. But British goods were forced on India free of duty. Thus British manufacturers strangled India's handicrafts through political injustice. Later, the same process was repeated in the case of factory industries[50].

Commercial Policy of the East India Company

The commercial policies of the East India Company were not particularly helpful for the industrial capitalist seeking to introduce new manufacturing methods into India.

It was only in the decade 1850-60 that stable foundations were laid for the rise of some types of modern industries in India. Cotton mills began to be established in Bombay after 1854 mainly as the result of the enterprise shown by some Parsi cotton merchants. The first jute-spinning mill came into existence at Rishra near Serampore in West Bengal in 1855, while the weaving section of the jute industry started its operations in 1859, Manufacture of leather by the use of modern methods started in 1860 with the establishment of the Government Harness and Saddlery Factory at Kanpur. Machine-made paper was introduced after 1870 when the Bally paper Mills were founded in 1874 the Barakar Iron Works started its production of pig iron. Woollen mills came into existence in 1876. The production of matches dates from 1895. Cement manufacturing

[50] Desai T.B., Op. Cit., p 93-94

started in 1904. Behind the rise of all these different industries there was the gradual opening of new coal mines which kept up the supply of industrial power. Beginning in 1820 at Raniganj, coal mining spread to other coalfields until by the beginning of the 20th century the number of coal mines rose to over 300 employing over 85,000 workers. The development of coal mines was, in its turn, facilitated by the construction of railways after 1854. The railways themselves were big purchasers of coal. In addition, they helped the distribution of coal from the mines to the newly emerging industrial centres.[51]

Cotton Mill:

The cotton textile industry was the first of modern Indian industries the base on which the pyramid of Indian industrialisation has been built.

The first cotton mill was set up in 1818 in Calcutta, but the real beginning of the industry was made in 1854 with the establishment of the first mill in Bombay.[52]

The Bombay mill, established by a Parsi merchant, Cowasji Nanabhoy Davar, became the pioneer of similar enterprises in that region and the radiating point of modern cotton textiles manufactures in India. By 1875 there were 48 cotton mills, most of them in the Bombay region, with about 10,000 looms and 1 million spindles. The majority of these mills had both spinning and weaving units.[53]

The development of the cotton-mill industry in India had its repercussions on Lancashire. Indian imports of cotton twist and yarn cease to expand in the 1870's and, although imports of manufactured cotton goods were still increasing, India had begun to export coarser varieties of cotton cloth in larger amounts. As the Government of India, prepared

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[51] Bhattacharya Dhires, A concise history of Indian Economy 1750-1950, 2nd Edition, 1979, p-99
[52] Dewatt K.K., Indian Economics, p-47
[53] Bhattacharya Dhires, op cit.,p-100

by heavy financial needs of the Indian Mutiny and other military activities, had found it necessary to enhance import duties.

The British Parliament still wielded at this time to undiluted free trade principles, accepted Lancashire's plea, although it was repeatedly pointed out. In March 1879 import duties on certain coarser varieties of cloth were taken off by the Government of India at the behest of the British Government. This was followed in 1882, by a total repeal of all import duties.

The number of mills increased steadily and, with the introduction of new types of mill machinery after 1885, the production of finer counts of yard and superior varieties of cloth also became possible. By 1895 the number of cotton mills had risen to 138. By 1903-04 another 68 mills had come into existences. As the industry spread to other parts of India proximity to local markets appreciably benefited mills in upcountry centers and many these centers had also the balance of advantage in relation to supply of raw materials Towards the end of the nineteenth century cotton mills in India began to face a number of problems. During this period of depression the Bombay mills suffered more in comparison with the mills in the inland centers. The industry was considered for protection in 1926 on the representation of Bombay mill-owners. [54]

In April 1932 a Tariff Board for the cotton mill industry was set up for the second time to go into the question of continuance of protection to the industry after March 1933.

Similar agreements were concluded by the Indian cotton interests with the Lancheshire textile industry in 1933 and 1934. On the basis of the understanding reached in these agreements, ad valorem duties on British goods were reduced in 1936 from 25 per cent to 20 per cent and the minimum specific duties from 4 3/8 as. per lb. to 3 ½ as. per lb. In

[54] Ibid,p-102

1939 a new Indo-British Trade Agreement permitted the import duties on British goods to be reduced further to 17 ½ per cent on printed goods, 15 per cent on other goods and a minimum of 2 annas 7 pies per lb. on plain grey goods. The Agreement of 1939 provided for a minimum quota of 350 million yards of British textile imports into India.

The Second World War created conditions favourable for the industry's expansion. Protection was discontinued in 1947. In April 1951 there were in the country 378 cotton mills of which 103 were exclusively spinning mills while the rest were composite units. On the basis of the spindles and looms installed, the Indian cotton mill industry was the third largest in the world.[55]

Jute Mill:

In India jute mills came to be established in the 1850's. The credit for establishing the first jute mill goes to an ex-official of the British Merchant Navy, George Acland, who set up his jute-spinning mill at Rishra on the Western bank of the river Hooghly in 1855. The first jute-weaving mill based on steam power was established at Baranagar, near Calcutta in 1859. Since the demand for jute cloth as a packing material was expanding with the growth of world trade, the jute mills found a ready market for their products. But difficulties of financing and procuring the requisite machinery prevented a rapid expansion. By 1873 only 5 jute mills had come into existence with a meagre 1,250 looms. Between 1875 and 1900 there was considerable expansion in loomage, the number of looms in 1900 rising to over 15,000. Between 1900 and 1913 loomage again increased by 135 per cent. From the very beginning the indigenous jute industry faced the competition of the already established jute industry of Dundee. But the superior advantages enjoyed by the Indian industry in the form of cheaper raw material and labour as well as the lower

[55] Bhattacharya Dhires, p-104

level of taxes enabled the Indian industry to survive in competition and earn comparatively high profits. In fact, by 1894 the raw jute intake of the Indian jute mills was already higher than that of its British counterpart. British industry, however, registered a superior level of efficiency.[56]

Indian output of jute products surpassed British output in 1908. At this time Germany and the U.S.A. were also developing their own jute mills under tariff protection. Their policy generally was to manufacture gunny bags out of imported Indian hessian, so that the main effect of foreign competition was to reduce the relative importance of sacking to hessian production in the Indian jute mills.[57] Even when the productive capacity of jute mills in India was on the increase, the problem of unused capacity recurrently arose, since the demand for jute goods fluctuated from year to year depending on the volume of world trade.[58]

In 1884 they formed themselves into the Indian Jute Manufacturers' Association (name later changed to Indian Jute Mills Association) which generally tried to maintain high profit levels by working shorter hours or sealing a percentage of looms. the earliest instance of a short-time arrangement was in 1886 while sealing of looms was restored to for the first time in 1890.[59]

New entry into the industry was somewhat slowed down after the formation of the I.J.M.A. (Indian jute manufacturing association.), new mills being allowed to be established mainly by the already established concerns.

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[56] Ibid, p-105
[57] Ibid, p-105
[58] Ibid
[59] Ibid

During the First World War there was an enormous increase in the demand for jute goods, particularly for sand bags. There was a doubling in the value of exports of jute manufacturers between 1914-15 and 1918-19, but very little expansion in the size of the industry. Profits rose to unprecedented heights. But the prosperity of the industry did not lead to any substantial improvement in the condition of raw jute growers. The exports of raw jute were subject to war-time controls imposed largely in the interests of the mills. Prices of raw jute declined substantially as the foreign demand for raw jute dwindled away during the war years.

The war boom continued up to 1921-22, but in that year the value of exports fell by as much as 44 per cent. However, while the abnormal war demand was thus falling off, the normal increasing trend in demand continued.

The restriction on working hours which had been prevalent since April 1921 (54-hour week) was given up on 1st July, 1929 (60-hour week). But the change in policy was ill-timed as the world-wide depression very soon led to a sharp decline in the demand for both raw jute and jute manufactures. The rate of profit in the industry declined. Between 1930-31 and 1933-34 there was, in fact, a decline in the number of mills in spindleage and loomage.

During the depression jute production continued to record a slow expansion because (a) the volume of world trade fell less than its value after 1932 the volume was recovering, reaching almost the pre-depression level in 1937, and (b) the I.J.M.A. sought to maintain profits by restricting outputs working hours were reduced to 54 per week with effect from 1st July, 1930 and to 40 per week from March 1931.[60]

[60] Ibid, p-106

During the Second World War the demand for jute revived and profits in this industry over-stripped the rate of profit in other Indian industries. By 1942-43 the number of mills rose to 113, loomage to 67,774 and spindleage to 13.75 lakhs. In the middle of December 1939 the jute mills were exempted from the Factories Act to enable them to work 60 hours a week. In the immediate post-war period prosperity continued for the first two years. Then came independence and the partition affecting severely the fortunes of the industry.

As a result of the partition while the bulk of the raw jute supply went to Pakistan, the jute mills remained in India. The difficulties in obtaining a steady supply of raw materials, the emergence of new competition from jute mills in Pakistan and elsewhere and the dwindling demand for jute as a packing material. All these created grave problems for the jute industry in the post-independence period. The Korean War (1950) brought about only a temporary spurt in demand and prices.[61]

The Iron and Steel Industry:

The iron and steel industry was protected initially for three years. In 1926 a second enquiry was carried out by a Tariff Board and renewal of protection was recommended. In 1927 the industry was granted protection for seven years, with different rates of duty being imposed on standard and non-standard steel.

As standard steel was imported mostly from Britain, such differentiation actually implied preference for British steel. Indian public opinion was opposed to Imperial Preference in any form and the bill embodying different rates of duty for different types of steel was vehement opposed in the Indian legislature. Several years late after the Ottawa agreement

[61] Ibid, pp 107-108

of 1932, the scale of preferences on British steel goods was revised and the duration of protective tariffs was extended up to the end of October 1934.[62]

The protective duties adopted in 1934 remained in force until March 31, 1947. Between the years 1934 and 1939 there was an almost eight-fold increase in production of steel ingots.

On the outbreak of the Second World War iron and steel prices can to be controlled by the Government. Protective duties became unnecessary after the War and were discontinued with effect from April 1, 1947.

The Second World War brought about a considerable increase in demand for iron and steel in the country. The industry responded raising the output of steel ingots.

The Iron and Steel Panel set up by the Government of India, which examined the prospects of the steel manufacturing industry in India in the post-World War II period, estimated domestic requirements of finished steel a 2 million tons per annum. As more and more public construction projects have been planned, this estimate has been continually revised upwards.[63]

The Sugar Industry:

Indigenous methods of manufacturing sugar from cane were in use in India from very ancient times. The sugar turned out by such methods was not of course, as refined as the sugar produced in today's sugar mills, but apparently a large demand existed for Indian sugar in many countries of Asia and Europe. The East India Company exported sugar from Bengal for many years until the British Company exported sugar from Bengal for

[62] Ibid
[63] Ibid, p-110

many years until the British Government, as a matter of policy, decided to accord preferential treatment to sugar grown in the West Indies.[64]

European methods of sugar refining were introduced in India about the middle of the nineteenth century. But the domestic demand for sugar was growing by leaps and bounds, encouraged by the fact that foreign sugar could be obtained in India at a price that compared favourably with the domestic cost of sugar production. After 1863 India became a net importer of sugar, the main source of supply being Mauritius where British planters had built up a cane sugar industry with the help of indentured Indian labourers. Towards the end of the nineteenth century European beet sugar, especially from Austraia and Germany, also began to be imported in large quantities. It was reported that the beet sugar was being unloaded on the Indian market with the help of special bounties and in 1902 the Government of India took action to stop much imports by imposing a duty on imported beet sugar at a rate intended to neutralize the effect of bounties. This was the first instance of government's intervention with trade after free trade had been declared as official policy in the 1870's. But the intervention was primarily in the interest of British sugarcane planters in Mauritius whose exports to India had been adversely affected by the short-lived competition of European beet sugar. The International Sugar Conference, meeting in Brussels in 1901-02, decided in favour of abolition of all kinds of bounty and import duty on sugar; consequently the European countries withdrew their bounty on sugar exports and the Indian import duty on bounty-fed be sugar was also taken off in 1904. Just before the First World War imports of sugar from Java increased remarkably, as the sugar industry in java turned to the Indian market after having lost the

[64] Ibid, p-111

US market to Cuba which became the most preferred supplier in the American market under a bi-lateral agreement between the U.S.A. and Cuba.[65]

The First World War brought about a world-wide scarcity of sugar as the production of European beet sugar was hampered by the war. In India the price of sugar rose to unprecedented heights.

A revenue duty on sugar imports was introduced in 1894, the rate of duty being 5 per cent ad valorem. During the First World War revenue considerations led to an increase in the duty on sugar to 10 per cent. In 1921 the duty was further raised 15 per cent and in1922 it raised 25 per cent In 1925 the duty on sugar of superior quality was converted into specific duty at the rate of Rs. 4.50 per cwt. which, at the then prevailing prices of sugar, amounted to about 30 per cent ad valorem.

A Tariff Board was constituted in 1931 to study the condition of the domestic sugar industry in the light of existing foreign competition. The Board recommended that the sugar industry deserved a protective tariff for 15 years, to enable the industry to face foreign competition on equal terms.

Under the Central Sugar-Cane Act, 1934, the provincial governments were authorised to fix minimum prices for sugar-cane purchased by the factories from cane-growers. The governments of U.P. and Bihar adopted schemes for regulation of cane prices under the provisions of this Act. The Government of India also instituted a fund to be utilised to assist the formation of cane-growers' co-operatives which would help farmers to secure fair prices for their sugar-cane crop.

Research for improving the quality of sugar-cane which had been initiated in 1901-02 was stepped up after 1932. In 1938 research came to be financed partially by an allotment

[65] Ibid, p-112

of 3 as. per cwt. from the sugar excise. The cane-breeding station at Coimbatore has done useful work in improving the varieties of sugar-cane grown in India, while the Institute of Sugar Technology at Kanpur has evolved a number of new methods to improve the extraction of sugar from the cane.

Excessive competition among themselves forced the sugar mills in 1937 to embark upon joint marketing arrangements by establishing a Sugar Syndicate.

In 1942 sugar prices were subjected to statutory control which continued into the post-war years except for a brief period of decontrol in 1947-49. During this period of de-control the Sugar Syndicate played a nefarious part in artificially raising sugar prices for which it was roundly condemned by a tariff board in 1950. The Syndicate went into voluntary liquidation in March 1950.

India not only became self-sufficient in sugar as a result of the grant of protection, but after 1936 also in a position to expand to neighboring countries at a competitive price.

The sugar industry in India suffers from a number of handicaps which ought to be removed as early as possible to improve its working. In the first place, the sugar-content of Indian cane is low by world standards and, therefore, Indian mills have a larger crushing cost per unit of sugar turned out by the mills. The quality of sugar-cane grown in India has to be brought up to the standard of other countries to enable Indian sugar mills to give a good account of them. Secondly, most of the mills are located in U.P. and Bihar although cane of a superior quality can be grown at a lower cost in the southern states. This uneconomic location of the industry tends to keep the cost of production of sugar rather high. Thirdly, the cost of sugar production is also kept high by the inadequate utilisation of such by-products as molasses (utilisable for manufacture of

alcohol) and begasse (utilisable for paper manufacture). In 1947-48 there were about 135 sugar factories in India employing nearly 120,000 workers. Production of factory-refined sugar in India stood at about 10 lakh tons in 1948-49.[66]

The Paper Industry:

Hand-made paper was in use in India but machine-made paper was introduced with the establishment of the Bally Mills on the Hooghly River in 1870. In 1882 the Titaghur Paper Mills was set up followed in 1893-94 by the imperial Paper Mill at Kakinara. These mills worked on imported wooden pulp or pulp made of Sabai grass. The use of Indian bamboo pulp for the manufacture of paper was introduced in Bengal by the Indian Paper Pulp Company formed in 1918. Paper mills also existed in Lucknow since 1879 and in Poona since 1887. The use of straw from Indian paddy for the manufacture of paper began in the Carnatic Paper Mills which started operations in Andhra in 1927-28. On the eve of the Second World War II paper mills were in existence of which there were 4 each in Bengal and Bombay, and on each in U.P., Madras and Travancore. Production of mill-made paper stood at 11.84 lakh cwt. in 1938-39.[67]

The growth of the paper mill industry was helped by the protection it received in 1925. The Bamboo Paper Industry (Protection) Act of that year provided for the levy of a protective duty of 1 Anna per lb. on certain varieties of imported paper which were a competition with bamboo-made Indian paper. Initially the protection was granted for 7 years but on the basis of further enquiries by Tariff Boards in 1932 and 1937 protection was continued until it was withdrawn in 1947 as the industry no longer called for protection. During this period raw material supplies had improved and the cost of

[66] Ibid, p-115
[67] Ibid, p-115

production had been substantially brought down. On the eve of independence India had 16 paper mills with an annual production of about 20 lakh cwts. In spite of a remarkable expansion in domestic production imports of paper and board were rising as the demand for writing material increased with the spread of literacy, the proliferation of administrative establishment during the war and so on. Besides, India is still not in a position to manufacture certain kinds of high quality paper which have to be obtained through imports.[68]

The paper industry suffers from the high cost of some of its inputs such as chemicals and fuel. After the partition the industry also faced an acute shortage of supply of its principal raw materials, but this problem was solved in a fashion by the development of alternative sources of supply.[69] The industry further expanded during the Second World War. But after 1942 scarcity in the supply of raw hide had stood in the way of more rapid expansion.

The Glass Industry

The manufacture of glass was not unknown to India before the European advent but the process used resulted only in crude glass which was used for the manufacture of bangles and bottles. Several glass factories using more up-to-date processes of production came to be established in the last decade of the nineteenth century, but competition from superior European wares led to their decay. The Swadeshi movement gave a fillip to the starting of small glass factories to replace English glass-ware and a few factories organised on a small scale struggled for existence against foreign competition until suddenly the First World War, by cutting off imports, created conditions favorable for

[68] Ibid, p-115
[69] Ibid, p-115

their survival. Orders placed by the Indian Munitions Board helped the glass factories to diversify their production and improve the quality of the products. After the war glass imports increased again and a tariff board which investigated the conditions of the glass industry in 1931 recommended protective duties to certain glass products for a period of ten years. The Government of India, however, turned down this recommendation on the plea that the raw materials required for glass manufacture, soda ash in particular, were not available in adequate quantities in India. Some relief was granted by reducing the import duty on soda ash and an assurance was given to the industry that its case would be considered afresh when domestic supply of soda ash would improve.

Towards the end of the 1930's imports of glass-ware had begun to decline and a few factories began to work profitably. Further stimulus to the development of the industry was provided by the Second World War. When the war ended and foreign competition threatened to submerge the industry, it applied again for protection. This was given in 1948 by converting the existing 45 per cent revenue duty into a protective duty for five years.

The industry suffers from a shortage of good quality raw materials, fuel and skilled labour. The small scale and poor organisation of many of the units also stand in the way of development. As glass is a very important material, attempts are being constantly made to improve very important material; attempts were being constantly made to improve glass technology in India to catch up with foreign standards of achievement. The Government of India set up the Central Glass and Ceramic Research Institute in Calcutta in 1950 with this objective in view.

In 1945 India had 96 glass factories with an aggregate out-turn of 1.5 lakh tons of glass. Domestic production met only a very small fraction of Indian demand and imports worth about Rs. 2 Crores per year were coming in at the time of Indian independence.[70]

The Cement Industry:

As important building material cement is greatly in demand in the societies aiming at economic development. In India the production of Portland cement first started in a factory near Madras in 1904. But this factory ceased production after a short time. In 1912-13 three new cement factories came into existence in Porbandar (Gujarat) Katni (Madhya Pradesh) and Bundi (Rajasthan) but together the produced less than 1,000 tons. In the First War bulk purchasing of cement on Government account stimulated the industry's growth and by 1924 production had reached 2.4 lakh tons. The industry continued to expand even during the years of the Great Depression and in the eve of the Second World War Indian production of cement by nearly 12 lakh tons. Imports of cement declined from about 1.7 lacs tons in 1913-14 to only 21 thousand tons in 1938-39. The organisation of the industry improved with the amalgamation in 1936, of ten principal producers into the Associated Cement can panies of India Limited. This enabled the industry to improve best techniques and marketing arrangements.

The industry's claim for protection was turned down in 1924 on the ground that the industry was already suffering from excessive inter-competition. The tariff board investigating conditions in this industry, however, recommended the grant of bounties to cement produced factories which were at a disadvantage in respect of location. Out of the problems facing the outlying units in the cement industry has always been the high cost

[70] Bhattacharya D., p-116

of coal and the scheme of bounties was designed to offset this disadvantage. No action was taken at the time to help the units in difficulty.

During the Second World War domestic demand for cement, particularly for construction of buildings, declined owing to the fact the steel, a complementary material, was in extremely short supply. Export of cement was arranged and production was maintained at a high level. The end of the War saw an expansion in building and construction activities which raised the domestic demand for cement very sharp. On the eve of independence production of cement in India exceeded 20 lakh tons in a year.[71]

The Matches Industry:

A factory for the manufacture of safety matches was set up in Ahmedabad in 1895. But no other factory is known to have come into existence before World War I. The scarcity of imported matches during the war as well as the high revenue duty on such imports in the post-war period led Indian enterprise to move into this industry. But the industry came to be dominated by a Swedish combine which started manufacturing in India behind the wall provided by the revenue tariff.

The matches industry was granted protection in 1928 although the tariff board enquiring into the application for tariff expressed the opinion that the industry was quite capable of facing foreign competition without the assistance of protection. To encourage enterprise, however, the existing revenue duty was converted into a protective duty and this was followed by further expansion in the industry so that the country became almost self-sufficient in this commodity before the Second World War.

The industry consists of a large number of small firms on the one hand and a very limited number of large firms, including the gigantic Swedish combine, on the other. The

[71] Bhattacharya D., p 117-118

problem is to ensure that the latter do not force out the former by price-cutting and other devices. The industry had been facing problems of adequate supply of splinter wood and other ingredients.

An excise duty on matches was first imposed in 1934 and the rate of duty was enhanced by stages during the Second World War. At the close of the war India was producing over 20 million gross boxes of matches per year.[72]

The Chemicals Industry:

Before the First World War there was hardly any production of chemicals in India. The requirements for chemicals in the cotton textiles and paper industries were met by imports. The cessation of imports during that war brought into existence a number of chemical producing plants in India, but these were not very efficiently planned. When foreign competition revived after the war, many of these plants proved to be unremunerative. It was, however, essential to encourage the growth of heavy chemicals production in the country, since such chemicals constituted the basis for the manufacture of finer chemicals and drugs. An application for protection to the heavy chemicals industry was submitted in 1928 in which the argument was put forth that, being a key industry, heavy chemicals deserved especially generous treatment from the fiscal authorities. The Government of India showed little awareness of the special role of the heavy chemicals industry and arranged for some degree of protection in 1931 only after protracted enquiries. The result of protection was, however, beneficial. The number of factories producing chemicals increased substantially between 1931 and 1939.

The Second World War once again created a situation favourable for the expansion of the chemicals industry. Domestic production increased to meet the scarcity caused by the

[72] Ibid, pp 118-119

cessation of imports. A beginning was made in the production of several items of chemicals for which India had so long been relying solely on imports. After the war many of these new chemicals-manufacturing units received protection under the liberalised tariff policy adopted in 1945. The post-independence period saw further diversification in the production of chemicals in the country. In a number of instances foreign technical collaboration was sought to start the production of new varieties of chemicals whose importance was rapidly growing with the greater industrialisation of the country.

The chemicals industry in India is not yet suitably organised. Many units are too small for economical working and suffer from lack of facilities for purchase of raw materials and fuel as well from a lack of credit.[73]

The Engineering Industry:

Modern engineering methods were introduced into India in connection with the construction of roads, bridges and railways in the nineteenth century. The railway repairing shops were probably the earliest units of the engineering industry in India. In the early years of this century a number of steel-fabricating plants came to be established in the vicinity of the iron and steel plants, especially in and around Jamshedpur.

In the early years the development of the engineering industry was hampered by the Government of India's policy of importing the bulk of engineering stores from England. Even when the Stores Purchase Rules were relaxed in 1909 the engineering units continued to complain about the inadequacy of orders from the government. Most of these engineering units were, however, owned and looked after by the Britishers.

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[73] Ibid, p-119

The First World War brought about a reduction in engineering imports. But since the Government of India's capital expenditure was considerably reduced during the war years, the domestic engineering units had little scope for expansion.

The Government of India did not appear to be at all anxious to reduce the country's dependence on foreign imports for machinery and transport equipments.

A tariff board finding in 1924 that the railway locomotive industry was deserving of protection was brushed aside by the authorities. Several years later, an important step was, however, taken to provide some support to the Indian engineering firms; the stores Purchase Rules were revised in 1928 to provide for rupee tenders in purchasing engineering and other stores for government use. This afforded a greater opportunity to Indian engineering firms to compete with their British and European counterparts; but did nothing to offset the cost advantages of the latter. Besides, in this industry, the domestic units had to suffer also from a largely irrational preference in favour of imported products against which special safeguarding measures should have been taken by the authorities.

The Second World War created conditions favourable for the development of new types of engineering works; customer goods like bicycles and capital goods like machine tools came to be produced on any significant scale only during this war. Most of the new engineering industries that were born in this period were protected after the war. Special measures to expand capacity in these industries and to introduce new engineering goods for local manufacture, often with foreign technical collaboration, could be initiated only after a national government too over the reins of power in 1947.[74]

[74] Ibid, pp 120-121

Tanning Industry:

Madras Tanning Industry was called a modern industry in India. The industry owed its origin to one Charles De Susa who, about 1845, introduced certain improvements in the method used in tanning in India. This was in the Madras city and slowly it spread to the other important towns of the Madras Presidency. But the improvements never spread beyond this presidency. They were adopted by a large number of tanners and an export trade in Indian tanned hides and skins grew up. At first the trade was carried on with the united Kingdom only, but after the France-German War Germany became very active in the trade and this combined with the repeal of the 3% duty on these exports in 1875 and the extension of railways which opened up the country supplies of hides and skins to the Madras Tanner made the industry exceedingly prosperous; and by 1880 Madras was exporting a large number of tanned and half-tanned hides and skins to foreign countries. This industry showed an intermediate stage in the development of India industry. The independent artisan's disappears from this branch of trade and the small capitalists – in the person of the export trader in most cares-steps in. The unit of the industry is increased; it becomes a small workshop with an average of about five to seven workers. The industry had to be a purely export industry; for the village leather-worker tanned the leather that he wanted himself or got it tanned from the village tanner; and the urban demand for leather goods was not large enough to support an industry of this kind. They were just sufficient to produce leather somewhat superior to the ordinary Indian village tanned leather and to make it fit for export. This industry grew only because of cheap labour and cheap raw materials.

The above account of the few new industries in India will conclusively show that the extent of these in 1880 was exceedingly small and that, while the process of driving out people from their old crafts was proceeding quickly, the growth of new industries to absorb the people thus displaced of new industries to absorb the people thus displaced was in no sense proportionate.[75]

The Coal Mining Industry:

The use of coal as article of trade was unknown among the people of India. In ancient times wood was abundant and human needs were few. People followed the path of least resistance, and did not bother to dig out coal even if they were aware of its existence.[76] The existence of coal was not entirely unknown in India before the advent of the British its proved by the occurrence of such names of places as Barakar, Kali Pahari, Angarpathra and Damodar.[77] All the above places were important centres of coal mining industry.

The first Englishman to discover the existence of coal in Bengal the collection of Chhota Nagpur and Plamau.[78] He along with was probably Mr. Suctionious Grant Heatly who, in 1774 was one Mr. Ohn Summer submitted in 1774 a memorial to warden Hastings for a licence to work coal mines in Pachete and Birbhum. The firm of Messer Summer and Heatly, after receiving the approved from warren Hastings opened the first coal in 1774 near Sitarmpur. Actual mining did not began till the year 1815, when the coal steam at Ranigunj was discovered by Mr. Rupert Jones.

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[75] Gadgil D.R., Op. Cit. p-61
[76] Singh V.B., Economic History of India, 1857-1956, p-303
[77] Seth B.R. Labour in coal mining, industry and Bosr Sir, Indian Journal of Economics, 1936-37 (1940)
[78] Journal of Asiatic Society of Bengal, Vol. XI

The lease of the property of Mr. Jones was taken over by Messer Alexander & Company and this was the first regularly constituted mining company under European supervision and with European capital in Bengal. The year 1820 might be recorded as the date of first regular operation in the Ranigunj coal field.[79] In 1824 Messrs Jessop & Company opened mines at Damulia and Narainpur and worked them until 1839 when they were transferred to Messer Gilmore Homfray & Company. In 1843 Messrs Car, Tagore & company amalgamated to form the most important coal producing company in India. Messrs Aplar & Company were also among the pioneers in the Ranigunj field and were the first to put down shafts near Sitarampur to work the new famous Dishargarh Sea in Burdwan[80]. In 1841 Mr. J. Homfray noticed the existence of coal in the following areas in the district of Brudwan-Singhbhum, Nattta, Burrakar, Ranigaunj, Solwa and China coory. The report of the coal committee in 1845 drew attention to the difficulties of transport and the great export involved in bringing coal to Calcutta. In the fifties the foundation of the two important modern industries – cotton and jute mills were level. These two countries namely development of Railways and later establishment of jute and cotton industries contributed greatly to the development of coal industry through out the later half of the nineteenth century. The Geological survey of India was established in 1856. The first geological survey was made by Mr. T.W.H. Hughes in 1866.[81]

There was a rapid progress after 1886, so that the number of coal-mines more than doubled in the period (1880-94).During 1895-1914 coal made rapid progress. Coal benefitted among the other things, from wide of improved machinery by the mines and the growth of transport and factories. The result was a growing excess of exports over

[79] Report relating to coalfields in India, p-45
[80] Report of the coalmining company, 1937
[81] Singh V.B., Op. Cit., p 306-311

imports. up to 1917 progress was slow, chiefly because of wagon shortage. In 1917 Government became the large buyer and so it controlled the movement of coal. From 1909 to 1926 Indian coal satisfied 94-98 per cent of the home demand thus the growth of the industry depended on internal consumption. During the Great Depression (1929-39), the consumption and price of coal fell and many mines closed. But the war led to industrial expansion and therefore, to a rise in the demand for coal. In fact a coal famine developed and prices shot up.

The two forms of industry which were introduced into India were i) The plantation – form of industry to be found extensively in most of the tropical possessions of European countries, and ii) the other factory industry – the peculiar product of the latest economic transition in Europe.

The plantation was the first to be introduced into India; from the beginning the industry was purely European. It was the beginning of European exploitation of India resources. There was very little part taken by Europeans in industrial activity in India till the middle of the nineteenth century. But the many restrictions placed on Europeans permanently acquiring land in India (Placed by the East India Company to safeguard its interests), the trading monopoly of the company which lasted till 1833, the lack of internal communication and also the deplorable lack in India of fertile but sparsely populated tracts hindered the early growth of such activity. But some of these obstacles were slowly removed.[82]

Indigo:

Indigo have been grown and used in Gujarat and western Indian from Asian time and apparently was introduced from there into Europe through the Champions of Alexander

[82] Gadgil D.R., Op. Cit., p-47

the Great. After the discovery of the route around Africa, it became a very lucrative article of commerce in the hands of the Dutch, the Portuguese and the Spanish. The East India Company also carried on extensive trade in the Indigo dye with the growth of cotton manufacturing by power in England, the demand for dyeing materials became large and the East India company resolved to revive the industry at the same time production in America was decline because of the freeing on the negroes in the French Colonies, As a consequence of the French Revolution and, the situation among the English speaking growers who were taking up the more profitable crops of sugar, coffee and cotton. The East India Company invited the notorious slave-drivers of America and West India to settle in the selected districts of Bengal and to grow Indigo. The company's own officers, especially the commercial residents, were also allowed and encouraged to change in the business. This was towards the beginning of the 19th century and the establishment of the industry in Bengal gave a death-below to Gujarat industry. By 1850 Indigo was one of the most important export for India.[83]

The oppression of the indigo planters continued for half a century, until in 1860 when peasants of the deltaic Bengal raised rebellion and resisted the oppression. The Government appointed the Indigo Commission to carry out a thorough investigation.

After the revolt, Indigo planting was forced more and more out of lower Bengal. The industry migration to U.P.[84]

Tea Plantation:

The cultivation and manufacture of tea also suffered to the European in India a good opportunity for the employment of there capital and organizing ability. There were

[83] Chakrabarty S.C., Economic Development of India, pp 208-209
[84] Ibid, p-210

abundant areas of land suitable for the cultivation of tea and an exhaustible supply of labour. The tea industry in India began much later than indigo. In the 18th century, the East India Company enjoyed the monopoly of importation to Europe of Chinese Tea. The removal of the company's monopoly of the China trade in 1833 promoted the company to establish tea industry in India. About 1820, at many places in the Brahmaputra valley of Assam, indigenous tea plant growing in wild condition was first discovered. In 1834, Lord William Bentick sent a special mission to China to obtain seed. Plants and expert knowledge and several experimental gardens were stared by the East India Company along the South of the Himalayas and in lower country in Assam. In 1831 the first Indian tea was marketed in London, and in that city in 1839 was formed a private company, the Assam company, for the growing of tea in India. In 1839 the East India Company sold its gardens to the Assam Company which enjoyed a virtual monopoly of tea production in India during the first decades. In 1859-66, there was an orgy of speculation in gardens. In 1871 Assam had 275 plantations averaging a little more than 100 acres each. At that time Darjeeling had 44 plantations with a reported area of 229 acres each.[85]

After 1871, there was steady expansion in production and export of tea and by end of the century, Indian tea was able to drive chine tea out of the British market. But increase production of tea in India and Ceylon resulted in a heavy fall in prices. This made standardization of the Indian Tea very necessary. The Indian Association was formed in 1899 for improvement in quality and standardization. During the First World War prices rose high and both production and exports increased.[86]

[85] Buchanan Op. Lit., pp 57-58
[86] Ibid, p-214

The tea industry overwhelmingly an export industry. There has been ascendency on the part of the existing tea-production countries to expand their production, and new countries are taken to the production of tea.[87]

Coffee Plantation:

Coffee began to be grown largely from 1823, but it started flourishing from 1860 only.[88] Coffee was first introduced in India by the Moor traders in the Seventeenth century and its cultivation was undertaken in many parts of South India. It did not attain importance, however, till its production was undertaken by European planters. The first Coffee garden was planted by European in 1840. During the first decade after 1860 to 1879 was a period of continuous and uninterrupted progress and prosperity for the coffee industry. But already in 1875 the borer disease was greatly havoc among the plantations and it increased in its intensity in 1879.[89] In the late seventies free-bores and leaf-blight created havoc among the plantations and many of the coffee estates had to placed under tea, cinchona and rubber. The difficulty was further aggravated by the fact that nearly 90% of the coffee produced in India was exported and there was no home market to fall back upon. Because of this competition, during the decade 1877-1887 as many as 263 plantation industries in the nineties due to political unrest in Brazil but area under cultivation continued to decline. From 237,500 acres in 1885 it had fallen to 133,000 by 1894-5 and to 88,000 by 1914-15, since then, the industry has been relatively of small importance.[90]

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[87] Ibid, p-214
[88] Desai T.B., Op. Cit.,p-130
[89] Gadgil D.R., Op. Cit., p-53
[90] Chakrabarti S.C., Op. Cit., p-215

The plantation on a whole, were now taking a smaller proportionate share in Indian industry. They were in a somewhat different position from the other industries. They were almost wholly European-owned. They were exempted from the ordinary labour laws of the country and the plants had greater control over his labour force than the ordinary industrialist. These industries were partly agricultural and partly industrial, and all of them exported the greater proportion of their product. The tea and coffee industries opened up lither to waste tracts, and their chief importance in the industrial progress of India lay in providing an occupation for a great number of labourers from congested parts of the country.[91]

Industrial Growth in the Baroda State:

In those days when machine had not made its headway in India, there were a number of small handicrafts giving employment to a bulk of population. Even as far as the year 1870 i.e. by the second half of the 19th century, there were found all over the State a number of small industries, giving employment to about 18 per cent of the population. Every village and every town had a full complement of smiths, carpenters, tanners, weavers, brass-workers etc. who supplied the needs of the local people. Some towns were noted of their special manufactures: Patan for Patolas, Visnagar for brass and wood-work, Kadi and Patan for cutlery, 'Sankheda for horn and lacquer work, Navsari for wood-carving, Baroda and Patan for silk and gold thread industry, Padra, Kathor and Nandod for dyeing and printing, Baroda for glassware, Dabhoi for turbans, Billimora for shi-building etc. All these were had industries carried on by artisans mostly in their homes.[92]

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[91] Gadgil D.R., Op. Cit., p-118

[92] Shah M.H., Baroda by decades 1871 to 1991, pp 102-103

These industries received a set back towards the second half of the 18th century when, under the influence of modern industrialism, factories of modern type were set up all over Gujarat and there was a great influx of cheap machine-made articles from foreign countries as well. Combined with this sudden competition of cheap articles, was the change in the tastes of the people; and this resulted in the decay of most of the hand industries.[93]

The old handicrafts were slowly going out of existence while no new industries were established. This grim fact did not go unnoticed during the reign of the Sayajirao Gaekwad took up the work of developing the natural resources of the State, of reviving wherever possible the old industries and of introducing modern industries. From the time the late Maharaja came to the throne, he perceived the complete absence of modern industries and initiate various measures for their introducing. As a beginning a few model factories such as cotton and sugar mills were started. The people also organised a few small industries such as pencil-making, button and soap making, etc.

In the year 1884, the State pioneered the sugar factory at Gandevi. At first it was started as a joint stock concern and the State took shares for half the amount. But as this did not work satisfactorily, the State purchased the factory at a cost of Rs. 3 lakhs and worked it for some time. In 1904 the State sold it to a private owner.

In 1892, he pioneered the cotton industry in the State and started a cotton spinning and weaving mill as an object lesson to the capitalists. By 1905, it was realised that the importance of the cotton industry was well understood and that private enterprise was forthcoming to start new mills and hence it was decided that the factory should be sold. The third industry that saw its rise during this period was a brick factory started by the

[93] Ibid

Public Works department of the State in the year 1890 for manufacturing Mangalore tiles, earthen-ware pipes and jars. In the year 1907, the factory was sold, for similar reasons.[94]

The State and the Industries:

According to M.H. Shah the industrial growth divided in different periods. The first Period in the history of the industrial development of the State was started from 1870. During this period, the policy adopted by the State was to start in industry as an object lesson to the capitalists of the State and give it over, as soon as possible to private entrepreneurs. This encouraged private capital to flow into the channel of industrial development and thus the campaign to industrialise the State bore fruit.

The Second Period-Laying the foundation (1890-1905):

In the second period the industrial development of the State commence with the early nineties. The old policy of starting new industrial ventures was continued, though with less vigour, and new instruments of industrial expansion were made use of.

Technical education:

The most important event worth record during the decade 1890-1891 was the beginning of technical education in the State with the establishment of Kala Bahvan and Museum and sending out of a number of students to Europe for training in industries. While passed orders on the scheme for establishing the industrial school.

The Kalabhavan was, therefore, established in 1890 A.D.

Besides the Kala-Bhavan, Baroda Industrial Museum was founded at Baroda in 1894. It was divided into two sections-Sciences and Arts, the former mainly dealt with Geology and Biology; while in the Arts Section, there was a special wing for Baroda industries.

Other activities:

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[94] Ibid, p-104

The other instrument of developing the industries was communications. Accordingly railways were built allover the State. The Petlad Railway, Mehsana-Viramgam railway and Mehsana-Patan railway were opened for traffic during the years 1890 and 1891.

It was during this period that the Geological and Economic surveys were undertaken with a view to explore the strength and extent of the natural resources of the State upon which rest the possibilities of industrialising the State. The geological survey was made in the year 1892 by Mr. Bruce Foote. The first industrial survey of the State was started in the year 1893. It was concerned both with agriculture and industries but so far as the later were concerned only the then existing hand industries were inquired into.

Many other concessions like loans at a low rate of interest, revised customs duties and others were given by the State. During four years falling within this period i.e. during 1891-94, a very active policy of loans were pursued. On the whole a very sympathetic policy was adopted by the State towards the promotion of industrial ventures in the State during this period.

Progress of industries up to 1901:

The progress during the initial stages would naturally be slow. There were 44 ginning factories and cotton spinning mill in the whole of the State. The Census of 1901 returned 273,313 persons or 14.2 per cent of the total population as engaged in industry. "Industrial enterprise and manufactures on the Western model are yet confined only to a few large cities."[95]

This was the period when foundation of the modern industrial development was laid, and as a result of the various activities of the State, a number of small industries grew up all around: flour and rice mills, cotton ginning and press factories etc., one indication of this

[95] ibid

growth is that the percentage of urban to rural population rose from 20 in 1891 to 24 in 1901.[96]

Rapid Progress (1905 to 1926):

The third period in the industrial progress began with the year 1905. " Under influence of the Swadeshi movement all over the country new industries were started;the State also took advantage of the enthusiasm of the people and extended its help to all new ventures that were started with loans and many other ways".[97] During this period some important measures for the promotion of industry were taken. The most important of them were (1) the establishment of a special department of Commerce and Industries and (2) the starting of the Bank of Baroda.

Before 1905, the work of developing commerce, trade and agriculture was for a long time carried on by the revenue department with the assistance of the public works department and some of the Naib-Dewans who took personal interest in economic problems. In 1905, a separate branch was opened in the revenue department and a special officer was appointed in charge of commerce, industry, agriculture, customs and a few other allied branches. Soon after, it was found that a single officer, however capable, could not cope with the work of all these departments and therefore, in 1906, the office of the Economic Adviser was created, and in 1907 his office was converted into the department of Commerce and Industry though at the same time he held the office of the Joint Revenue Commissioner. [98]

The Economic Adviser devoted his attention to the cotton seed oil industry, tanning and fibre industries, improvement of the cotton staple, dyeing and other industries. A large

[96] Ibid ,pp-106-107
[97] Report of Baroda Economic Development Committee 1918-19
[98] Ibid ,pp-108-109

number of duties which hampered trade was abolished in 1904 finally with a view to further stimulate trade and industries, custom duties of every kind were abolished in 1909. This spirit of industrialisation took hold of the authorities and of the prominent men of the time. It soon found expression in the establishment of Alembic Chemical works in 1907 by private enterprise. It was during this phase that the interest in cottage industries was developed. In the year 1907, an expert trained in America was engaged in make experiments in chrome leather tanning. In 1909 machinery for chrome leather tanning was purchased. Before, however, it started working a private company came forward to whom the machinery was transferred at test. Again in 1909, a fully equipped Furniture Factory was started under the management of the former State scholars trained in Europe. In 1910, an American expert was engaged to investigate the possibilities of oil industry and the manufacture of soap and other products. It was also during this decade that a complete electrical generating plant was installed for supplying electric light and power to persons in the Baroda City.[99]

The atmosphere surcharged with industrialisation brought forth the establishment of the Bank of Baroda in July 1908.

The total number of factories rose from one cotton spinning mill and 44 ginning factories and presses in 1901 to 86 factories of all kinds in 1911. These 86 industrial establishments had a total labour force of 9421 persons out of which 7216 were males and 2205 were females. Of these 86 factories, 39 were in Baroda district, 17 in Baroda city, 16 in Navsari district and 7 in Kadi and Amreli district, each. Kadi, though it has the

[99] Ibid ,pp-109-110

largest area and population of all the districts, could show halting industrial development during the decade. [100]

The 86 industrial establishments disclosed by the census of 1911 comprised 48 cotton ginning factories, seven cotton presses, four cotton spinning and weaving mills, one silk factory, one brush factory, four dyeing factories, one leather factory, one saw mill, one sugar factory, one water works, one opium factory, three brick factories, three oil mills, one chemical works, one rice mill one furniture factory, one tramway, one railway bridge work, one electric light company and four printing presses.

Of 86 industrial concerns, 57 were devoted to this industry and of 123 persons per mille of population supported by industries, 48 were supported by this industry. The number of cotton spinning and weaving mills rose from 1 to 4 and cotton ginning and pressing factories from 44 to 55 during the decade. Second in number came wool industry which supported 13 persons per mile of population. Ceramics also supported the same number while chemical industry supported only 5 and metal industry supported only 8 per mile of population.

During the ensuing decade i.e. 1911-21, the growth of industries continued. Mr. Whitnack, the Economic Adviser, retired from the State service in the year 1909 and thereafter the Department of Commerce and Industry was separated from the joint-revenue office and placed directly under the Minister with the object that the industrial matters should receive the best attention and if possible the Head of the administration should remain in charge of it. But at this time the Director of Industries was asked to

[100] Ibid

work as Registrar, Co-operative Societies also. In 1915, the department was again placed under the Joint Revenue Commissioner. [101]

It was in the year 1915 that rules of the development of industries were made by the Government. These rules defined the orbit within which the Government assistance was to be given to the existing and new ventures in the State.

The Shree Sayaji Iron Works was added to the list of Baroda industries in 1914. It specialised itself in the manufacture of agricultural implements like plant pullers and hoes on economical scale to suit the purse of the agriculturist.

It was also during this period that Baroda, Economic Development Committee was appointed to enable officers and Ryots to put forward their suggestions as to how the country can be made prosperous and how material resources could be developed. The Government officers were required to submit practical suggestions after an inquiry into the methods to be employed to increase the productivity of the soil, to improve cattle-breeding, to develop the forest products, arts, commerce and industry. The Committee submitted its comprehensive report in 1919 and the Government lost no time in taking action on some of the suggestions made by the Committee.

The rules for Government assistance to the industries in the State, which were first made in 1915, were revised and made more elaborate and liberal.

The present period was the most important period and begins in the year 1926. The industrial development of the State during this period was really remarkable. The policy of industrialization of the State, which was steadily pursued during the reign of, assumed,

[101] Ibid, p-112

during this phase, the form of intensive drive towards industrialization under the guidance of Sir V.T. Krishnamachari, the Dewan of the State. [102]

This period (1927-41), the number of operatives employed in industrial concerns coming under the Factory Act rose from 17000 in1927 to 41101 in 1941, the number of factories rose from 122 in 1927 to 148 in 1941, the paid up capital of joint stock companies rose from Rs. 319 lakhs to Rs. 1164 lakhs, and the number of towns from 50 in 1927 to 64 in 1941.

One important factor that largely contributed towards the rapid growth of trade and industries in the State may be mentioned here, i.e. the development of port Okha.

The harbour at Okha was surveyed by the Royal Indian Marine in 1882 but the real work could not be started earlier than 1922. A sparse population in the surrounding area, scanty rainfall, poor soil, and complete absence of railway connections with other parts of Kathaiwar, Gujarat and Central India, these acted adversely against developing Okha as a port at the time.

Sayajirao Gaekwad III helped overcoming all these difficulties and the port was completed in 1925. It was formally opened in 1926. Only within 18 months of the opening of the port, the Viramgam Cordon was reestablished and the duty on goods going beyond the cordon including those going within the State territories in Gujarat was received by the Government of India, and most of the customs revenue that would have accrued to the State as a result of the development of port Okha was lost to the State.

It was essential in the rightful interests of the State to find a way out of this unsatisfactory position and with this object negotiation with the Government of India was started for reconfirmation of the customs right to the Baroda State.

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[102] Ibid,p-114

In a country where the majority of the people lives in villages and depends upon agriculture, the question of village industries is bound to assume great importance. The non-economic character of Indian agriculture, the spare time of the Indian agriculturists and increasing pressure of population upon agriculture were a few of the many factors that make revival of old village industries and establishment of new ones, a great need of the hour. [103]

The first need of villages was the need of revival and strengthening of village industries that village people can carry on in their free hours, i.e. subsidiary industries, Hand-spinning, hand-weaving, Eri-rearing, rope and lace making, embroidery, artificial flower making and others are some of such industries that are found to exist in the State.

The second aspect of village industries was the need of removing surplus population from agriculture. There are a number of landless labourers everywhere in our midst and if they could be employed in some industry, agriculture would be free from the pressure of maintaining such people. These types of industries require a complete survey of the local raw materials and also a study of the manufactures that could be obtained out of them. If this task was patiently carried out, it revolutionise the whole rural site and make the villages small smilling spots. There were some independent rural industries obtaining in Baroda; wood carving tanning and manufacturing leather articals,metal-work lacquer work ,oil pressing, pottery, soap making ,manufacture of perfumes ,basket making ,glue making etc.[104]

[103] Ibid , p-129
[104] Ibid ,pp-132-133

Agricultural Condition in the Baroda State:

The people of the Baroda State were mostly agriculturist, and the greater part of its revenue was derived from agriculturist. The total land in the State was 8,434,144 bighas (1.7 bighas = 1acres) of which 6,969,080 bighas were areable. In 1921 5,675,640 bighas were under cultivation and 1,293,640 bighas available for further cultivation.[105] These figures were exhibited in detailed for each district in the following table:

District	Total area	Culturable	Unculturable	Occupied and under cultivation	Unoccupied
Baroda	2,089,645	1,775,309	314,336	1,569,294	206,015
Kadi	3,292,235	2,897,706	394,529	2,340,484	557,222
Navsari	1,579,351	1,091,691	487,660	1,050,258	41,433
Amreli	1,173,239	983,716	189,478	629,117	354,644
Okhamandal	299,674	220,613	79,061	86,487	134,126
Total	8,434,144	6,969,080	1,465,064	5,675,640	1,293,440

Source: GBS Vol-I p-256

Land is divided according to the use made of it into *jarayat*(dry), *kyari*(rice) and *bagayat* (garden land).

The cultivator has an intimate acquaintance with his land but with this his limitations begin. He was further handicapped by the custom and tradition of ages from which he cannot set himself free without incessant preaching and systematic guidance. His holding is small and was getting smaller and smaller by divisions leading to further fragmentation. He cannot cultivate his land except by the use of oxen. Further he was handicapped by the absence of manure. Animal manure was made into cakes and used as fuel. It is calculated that one million tons of bones and other materials for manure were exported annually from India though far more required here than in any foreign country.

[105] GBS, Vol-1 ,p-256

So we can say that he is born in debt, lives in debt and dies in debt. He spends most of his means on certain social occasions such as wedding and funeral feasts.

The most important problem in the agricultural economics of the State was that of the increasing sub-division of agricultural land. These small pieces were sub-divided on inheritance or when the owner had to sell mortgage them, so, from generation to generation the whole agriculture land was increasingly sub-divided. Prior to 1905 the land rules permitted the subdivision up to three bighas for *jirayat* land and one bighas for *bagayat* lands. In that year the revenue department for the convenience of the cultivators, amended the rules and permitted the sub- division. of dry and up to a bigha and a half, and wet land up to half a bigha .Even then the rules were not fully effective for they could prevents sub-divisions decreased by the judicial courts. [106]In 1917 a committee was appointed by the Baroda Government to considered what steps Could be taken to sop the excessive sub-division of agricultural holding. After this committee had submitted its report and in accordance with its recommendation Act- V Samvat 1977 was passed on 16 December 1920.The Act may be applied by notification to any village where two-thirds of the Khatedars desire it.[107] the Act was applied, land commissioners were appointed for redistributing the holding in such a way that each Khatedar got in one piece land equal to the total area of previous holding in small and scatters pieces.

In 1915 an Agriculturist Exhibition was held at Vyara .The cultivators of the Rani Mahals took great interest as was apparent from the large number of exhibits from them. The practical demonstration of work by improved implements such as iron ploughs, disk harrow, leveler etc. was made and the improved method of cane crushing and glu

[106] Ibid,pp-259-260
[107] Ibid,p-260

(molasses) making on the Poona furnace system was exhibited. In the Kai district an agricultural museum was reacted and suitably equipped. In 1915 a class for giving practical instruction in improved agriculturists opened in Jagudan and subsequently transferred to Baroda in 1917. Scholarship was also given to the agriculturist by the district local boards. In 1917 an Agricultural and Industrial Exhibition was held on Baroda which a very large and was the first of its kind after 1882 the site selected was the open ground behind the old Kala Bahavan. It was divided into five sections

I) Agriculture

2) Horticulture

3) Forest Products

4) Industries

5) Education[108]

Government opened Agriculture Bank to help the agriculturists. The principal of these banks were:

1. exemption from the payment of stamp and registration duties
2. subscription of half the share capital
3. collection of arrears by revenue progress
4. state audit and inspection

There were such banks at Amreli, Songhad and Vyara.[109] Another method of financing agriculture was through the co-operative credit society's .The co-operative credit societies Act was passed in the State in 1905, soon after the enactment of similar nature

[108] Ibid, p-115
[109] Ibid, p-116

in British India in 1904 This Act was provided for the organization of credit societies only.

In1912 there were only two or three small co-operative credit societies in the whole district. In the beginning there were ten and gradually came forward to form a society" to please the Sirkar" or "Nam ke Vaste" but no society was registered. But gradually Mr. Nanavati was able to registered a large number of societies in the Kadi district not merely for credit but also for purposes of agricultural implements,fooder for cattle and article of daily use, such as gul (masses), and cotton seeds for cattle.[110]

In 1923 a model lecture in Gujarati was prepared and published by G.H. Desai on the subject in the khedut panchang (farmer's Amanack) A regard prevention our a large extent by so amending the revenue rules that no jarayat, bagayat or kyari lands could not divided. If any of the divided pieces comes to less than 8.3 and 1½ bighas respectively.[111]

Problems regarding the development of industries in the state:

I. Industries that could be developed:

Looking to the natural resources of the State, it is possible to develop the industries, such as cotton and oil mills appear feasible as there is an ample supply of raw materials, and suitable places for the location of factories. It requires,however good business men to organized them. It is possible to introduce other industries also such as wood distillation, alkali manufacture, manufacture of china-ware: but before these can be confidently recommended, some investigation and experiments on a small scale will have to be conducted. Only after they are found to be profitable, could the public be asked to

[110] Ibid, pp 117-118
[111] Ibid

undertake them. In such inquires, it will be necessary to engage experts in different lines; and in some those experiments on a small scale will have to be carried out.[112]

Besides the industries suggested above, it is quite possible to introduce some other industries also though these may be dependent upon raw materials that nay have to be imported, such as hosiery, calico printing, Saddlery and shoe making, manufacture of tin and hollow-ware etc. thorough preliminary investigation. In such cases besides local inquires, it would always be best to consult experts in foreign countries who might collect information about machinery etc, and render us careful and advice. This enquiry though costly ,will save the people unnecessary troubles some of the important institutions like the Society of Chemical Industry the Institute of civil Engineers, the American Society of Mechanical Engineers, and some of the important universities and technical colleges, may also be addressed and arrangement made through them.[113]

II- Adequate Banking Facilities

The Bank of Baroda, Ltd., is the only commercial bank in the State. It has two branches: At Navsari and Mahesana; which however do not other work than receiving deposits and doing the Hundi business .All loans are negotiated only at the head office, Therefore merchants living in the districts and taluka towns hardly get any advantage of the bank. Only those who want a fairly large amount and who are prepare to give some kind of tangible security can secure loans, so the small business and the small industry account side the range of the bank's influence. The bank has no an agents or Shroff in the districts who could enquire into the credit of the people or guarantee loans if found necessary. It is urged on the other hand it does not pay this bank to do small business in the districts; and

[112] Nanavati M.B. Notes on Industrial Development, Baroda 1916, p-32
[113] Ibid, p-32

if it does so, it will have to courage a better paid staff whose expenses would be too heavy for the bank. The result is that the small man does not get any assistance and the bank has to invest about three- quarters of its funds out of the state. The bank had rendered very good help to almost all the large industries, it had not able to demonstrate credit or meet the wants of the merchants of the state. Therefore, it was proposed that small banks should be organised in the important districts or talukas, towns with the help of local leaders. The State could pass a special Banking Act and renders some help.[114]

III. Bonded Warehouses:

Warehouses were needs at several places. When banking facilities were available, warehouses should be opened at important trade centers. The Bank of Baroda had been found unwilling to build any, and if private warehouse companies are stated, their certificates would not be accepted by banks as security for loans. The State ought to build some help small local merchants as well as the industries. In absence of such facilities the raw products were shipped to ports as soon as they were in the small industry had no opportunity of supplying its needs.[115]

IV. Technical Education:

a) The staff of the Kalabhavan was poor men with higher qualification both in theory and practice ought to engage. More intimate co-operation was required between the Technical Institute and the Department of Industries. The equipment of the Chemical Laboratory should be made for complete quantitative and qualitative analyses of industrial products. The Department of Chemical Technology should have a full equipment of machinery for experiments on a small scale.

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[114] Ibid, pp 32-33
[115] Ibid, p-33

b) More mono-technical schools should be opened in the districts-carpentry, smithy, weaving, dyeing, etc.

c) Manual Training should be made compulsory in all the better class primary schools; especially in all towns and important villages.[116]

V. Forest Industries:

Forest industries were neglected. If special varieties of trees grow then the forest industries work.[117]

VI. Industrial Exhibitions:

No industrial exhibition had been held in the State since a long time.[118]

VII. Industrial Scholarships:

Promising young men sent to foreign countries to be trained for important industries such as:

- Chemistry-oils and Fats.
- Chemistry-Alkalis
- Chemistry –wood Distillation.

The student had to be trained in the university first and then they had send to the foreign university for further training.[119]

VIII. Technical Library:

A fully equipped Technical Library should be organized at Baroda and a complete set of books and magazines on industries to encourage the students.[120]

IX. Industrial Survey:

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[116] Ibid, p-33
[117] Ibid, p-33
[118] Ibid, p-34
[119] Ibid
[120] Ibid

Instead of having surveys of general nature, surveys of important towns and industries should be made by the present staff of the department of commerce and industries surveys should be made by experts specially engaged.[121]

X. Industrial Museum:

An Industries section should be organized in connection with the Baroda Museum. It should consist of the following sections:-

A) Agriculture: Farm products and machinery

B) Forestry: Products and their uses

C) Industrial arts of Baroda

D) Industries:

1) Natural resources and raw materials

2) Their Industrial uses

3) Information regarding other industries, with the necessary charts, maps, models etc. A first class chemist should be placed in charge of this is section, who can test the raw materials, conduct experiments, reply lectures and demonstrations on industries subjects.[122]

XI. Publications:

Bulletins and leaflets on various industries should be prepared and published specially in the vernacular and magazines and journals on leading industries should be subscribed to and should be made available to the public.[123]

XII. Explore Salt:

About 10 to 15 thousand tons of salt forms every year in the creeks of Dwarka in Kathiawad, and with further improvement about 60 thousand tons could be obtained very small quantity out of this is sent to Zanzibar, but the rest is washed away by rains.

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[121] Ibid, p-34
[122] Ibid
[123] Ibid

Baroda Government have been writing to the Government of India to permit them to export salt to the Indian ports on payment of the usual import duties, that treat them on the same basis as the foreign importers. This request had been negative on the ground that such trade might encourage smuggling and the Government revenue might suffer. However, some arrangements could surely be made by which this raw material could be saved.[124]

XIII. Export of Alcohol:

Alembic Chemical Works, Baroda was manufacturing alcohol; and was exporting spirituous preparations to British territories. They had to sent it to Bombay under the Excise Rules .In this way, unnecessary and heavy freight charges have to be incurred.[125]

XIV. River Improvements:

There are three important rivers in Gujarat, namely, Tapti, Narmada and Ambika with Surat, Broach and Billimora Establishing new seaports improve the trade. The rivers pass through British and several Native State territories.[126]

XV. Joint irrigation and Electric power projects:

In connection with the rivers mentioned above as well as some others, it is possible to develop large irrigation as well as hydro-electric works. This cannot be undertaken without the co-operation of the British Government.[127]

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[124] Ibid
[125] Ibid
[126] Ibid
[127] Ibid, p-35