

**CHAPTER IV**

**INDUSTRIAL ADMINISTRATION**

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In the second half of the 19th Century, when the machine had not made its headway in India, there were a number of small handicrafts giving employment to a bulk of the population. Before the advent of modern industries, the small industries provided employment to about 18% of the population in the State. Among the small industries, weaving was known since times immemorial and was carried on by artisans, mostly in their own homes with traditional equipments. Villages and towns of the Baroda State had smiths, carpenters, tanners, weavers, brass-workers, etc. who supplied the needs of the local people. Some towns were famous for 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; Billimora for ship-building and Baroda for glassware.<sup>1</sup> At Dabhoi, fine turbans were prepared. Dyeing and Calico-printing at Dabhoi was another old industry. The colours employed were generally red, indigo and black. Dabhoi was also known for its brass and copper-ware. Copper and brass sheets imported from Europe were used in the manufacture. But these industries

received a set-back owing to the influence of modern industrialisation and competition of the machine-made cheaper and better foreign articles. This resulted in the decline of most of the handicraft industries.

Thus on the one hand, the old handicrafts were slowly and gradually losing their importance and were decaying, while on the other hand, no new industries were coming up. During the period of Sir Sayaji Rao's minority administration, the Dewan, Sir T. Madhavrao had no time to devote himself to industrial development in the State. Except in one case, when silk and gold lace weavers were invited to Baroda from Ahmedabad, no other serious attempts were made either to revive old industries or to start new ones. The new era of industrial administration actually began with the arrival of Sir Sayaji Rao III in 1881. With the commencement of his reign, the work of developing the natural resources of the State and of reviving old industries and introducing new ones, based on modern machinery and technical know-how, started. The period between 1881 and 1905 may be considered the period of "the pioneering efforts and laying the foundation of industrial development in the State". It was a period of industrial development, because a few model cotton and sugar mills were started. The people also organised a few small industries, such as pencil-making, button and soap-making and match-making. But due to the lack of scientific knowledge and information, most of the enterprises failed.

### Pioneering Efforts : 1881-1892

In 1884, the State pioneered the sugar factory at Gandevi in the Navsari District. At first it was started as a joint stock company and the State purchased 50% shares and invested half the amount in it. But as this did not work satisfactorily, both administratively and commercially, the State purchased the factory at a cost of Rs.3 lakhs and managed it for some time. In 1904, the State sold it to a private owner as an impetus and encouragement to others for starting such factories.

Immediately after the establishment of a sugar factory in 1884, the possibilities of establishing a glass factory were explored. Several experiments were made with sands found in the State. But finally the project had to be abandoned as a result of unfavourable reports.

The third important pioneering industry which he started in the State in 1892 was the Cotton Spinning and Weaving Mill as an object lesson to the capitalists in Baroda territories. The progress of this industry was satisfactory. By 1905, the importance of the cotton industry was well understood, and as private enterprise was forthcoming to start new mills, this factory was sold out. Therefore, three Cotton Mills were started at Baroda and one in Sidhpur. Thereafter, several Cotton Mills were started in Kalol, Petlad and various other

places. The fourth industry that was started by the Public Works Department of the State was the brick factory for manufacturing Mangalore tiles, earthenware pipes and jars. But the quality of the production was not satisfactory. For some time several experiments were made to improve the quality of the materials, but all attempts proved unsuccessful. Therefore, it was sold out in 1907.

During this period, the main policy adopted by the State was to start an industry as an object lesson to the capitalists of the State and give it over to private entrepreneurs. This policy encouraged private capital to flow into the channel of industrial development and thus the campaign to industrialise the State became successful.

#### Laying the Foundation of Industrial Development : 1890-1905

The second period in the industrial development of the State commenced with the early nineties. During this period, the old policy of starting new industrial ventures was continued and new methods of industrial expansion were adopted.

The most important event of this period was the beginning of technical education in the State and the establishment of Kalabhavan - a school of Art - and an Industrial Museum and sending out a number of

students to Europe for training in industries. While passing orders, on the scheme for establishing the industrial school, the Maharaja wrote : "The project of diffusing general and technical knowledge through the vernaculars has been under the consideration of the Government. The proposal of Mr. Gajjar to start such an institution on the grant-in-aid principle has been considered and it is thought desirable on the whole that the experiment should be made as a State concern. It is, accordingly, directed that the Technical Institution should be opened at Baroda where education of the hand and the eye will be attempted side by side with that of the mind and where instruction will be imparted mainly through the vernaculars. The object is to help the people to improve the existing industries and to introduce new ones that may be remunerative. The courses of instruction should combine theory and practice so as to turn out a more skilful artisan than at present... Along with this central institution, dyeing schools should be opened in the districts".<sup>4</sup> Therefore,<sup>5</sup> the Kalabhavan was established in 1890. In this institution many schools such as the,

- (i) School of Art;
- (ii) School of Carpentry and Cabinet Making;
- (iii) School of Mechanical Technology;
- (iv) School of Dyeing and Calico Printing;
- (v) School of Agriculture; and
- (vi) School of Pedagogy (Science of Education)

<sup>6</sup>  
were included. There were 350 students studying in this institution in 1891. Since then, the strength of students started increasing. In

1891, the Maharaja endeavoured to stimulate progress in many ways. First of all, a number of students were sent to Europe to acquire first-hand knowledge of industries, railways were built all over the State, loans were given to new industries at a low rate of interest and customs duties were revised. The result of these various measures and activities was the rise of a number of small industries, such as flour and rice mills, cotton ginning and press factories.<sup>7</sup>

After the establishment of Kalabhavan, the Baroda Industrial Museum was founded at Baroda in 1894. It was divided into two sections - (i) Science; and (ii) Arts. The former mainly dealt with Geology and Biology, while in the Arts section, there was a special wing for Baroda industries.<sup>8</sup>

The other important work of this period of the Maharaja, for the development of industries, was the construction of railways. Accordingly, the railways were built all over the State. The Petlad-Railway (Kheda District - Anand - Tarapur Section) 13.17 miles; the Mehsana - Viramgam Railway (Kadi District - Viramgam - Mehsana - Taranga Section) 40.17 miles; and the Mehsana - Patan Railway (Kadi District - Mehsana - Patan - Kakoshi extension) 24.69 miles were opened for traffic from the 1st February, 1891. Due to the opening of the railways, industrial development made considerable progress.<sup>9</sup> It was also during this period that the Geological and Economic Surveys were undertaken in order to explore the strength and extent of the

natural resources of the State upon which rest the possibilities of industrialising the State. The first geological survey of the State was made in 1892 by Mr. Bruce Foote of the Madras Geological Survey. The first industrial survey of the State was started in 1893. It was concerned both with agriculture and industries, but so far as the latter were concerned, only existing handicraft 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. Between 1891 and 1894, a policy of issuing loans was pursued.

The progress of this period in the initial stages was very slow. But slowly and gradually it increased considerably. There were 44 ginning factories and one cotton spinning mill in the whole of the State. A number of other industries such as flour and rice mills, press factories and dye works were making good progress during the period of 1881-1905. The census of 1901 returned 2,73,313 persons or 14.2% of the population engaged in industry and industrial development. One indication of this growth was that the percentage of urban to rural population rose from 20 in 1891 to 24 in 1901. But the Maharaja was not satisfied with this kind of progress in industry. In December, 1902, he spoke at the opening of the Ahmedabad Industrial Exhibition, that "I have tried various measures for the industrial progress in my own State, but I am sorry to say that the results are disappointing, that is, not upto the expectation. A sugar-mill, a cotton-mill, and an ice-factory were tried, but were not a good success. A State fund for the advance of capital and other assistance



to manufacturers also failed. I found that the managers were not sufficiently interested in the scheme, and not impartial in the working of it. I am convinced, however, that the fault lay not with the industries themselves, but in the fact that they were State enterprises".<sup>10</sup> After his speech, he announced his new campaign in 1905 for the growth of industries in the State.

#### Growth of Industries : 1905-1926

The period between 1905 and 1917 is considered to be one of the most important periods in the social, political and economic history of India. The early Indian national leaders, though they played an important part in the Indian National Movements, felt that the major economic problem of India was related to the condition of its industries, industrial backwardness and industrial administration. According to them, the factors among others responsible for this were the destruction of local industries and the failure of the modern machine industry to grow rapidly enough to compensate adequately the<sup>11</sup> loss of these local industries.

R. C. Dutt called the displacement of Indian manufacturers by foreign products as "one of the saddest chapters in the history of British India",<sup>12</sup> for it indicated that 'the sources of wealth in India have been narrowed' and the livelihood of people had been made<sup>13</sup> more precarious.

Due to this displacement, the balance between the agricultural and industrial sectors of the economy was disrupted, which deprived several workers of their traditional occupations and forced them to concentrate upon agriculture. Therefore, the early national leaders accepted the need of complete economic transformation of the country with the help of modern machine-based industries. The leaders also welcomed every effort to introduce new industries in the country.

The Indian States also responded to this and started efforts for industrial progress in their States. Sir Sayaji Rao III prepared certain points for the industrial development in the State. He stated that the restriction against foreign travel must be swept away in order to avoid stagnation.<sup>14</sup> He also stated that every patriotic citizen should have before him an ideal to revive the nation's own manufacturers and to start industries that were in demand.<sup>15</sup> He put more emphasis on the progress of science and technology and told the people that the old and outdated methods of works should be given up for better progress in industry. He suggested that the Indians should study the industrial history of the past and take all the important factors into consideration while planning the economic development of India.

After expressing some views to the people, he decided to strengthen the position of the State by making rapid industrial

progress. The year of 1905 in the history of India was the year of Swadeshi Movement as also in the Baroda State. Under the influence of the 'Swadeshi Movement', all over the country, new industries were started. The Baroda State took advantage of the enthusiasm of the people and extended its help to all new enterprises that were started with loans and many other ways.

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During this period, some important steps were taken for the promotion of industry. The most important of them were:

- (i) the Establishment of the Special Department of Commerce and Industry in 1907;
- (ii) the Establishment of the Bank of Baroda Limited to give finances to the local industries in 1908;
- (iii) the abolition of import and export duties; and
- (iv) the rules laid down for the development of commerce and industries.

#### The Establishment of the Special Department of Commerce and Industry in 1907:

Before 1905, the important work of the development of commerce, trade and industry was entrusted to the Revenue Department. It was carried on with the assistance of the Public Works Department and some Naeb Dewan who took personal interest in solving the economic

problems. The Maharaja found that the work of this department was not satisfactory. Therefore, he began a new campaign. Accordingly, in 1905, a separate branch was set up 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 could not cope with the work of all these departments. Therefore, in 1906, the office of Economic Advisor was created. After the observation of the work of this office, in 1907 this office was converted into the Department of Commerce and Industry. Since then the work of this department was very progressive. So in 1909, the Department of Commerce and Industry was separated from the Revenue Department and was placed under the Dewan, so that industries should come in the direct charge of the head of the administration.<sup>17</sup> In 1915, this Department was again placed under the Joint Revenue Commissioner. Since then it worked efficiently.

To systematise the industrial administration, the main functions of the Department of Commerce and Industry were defined by the Maharaja and the Dewan in 1915. They were as under:<sup>18</sup>

- (a) to study industrial and commercial conditions;
- (b) to conduct industrial experiments and to give demonstrations of successful process;
- (c) to advise manufacturers, merchants and artisans;
- (d) to advise Government about measures affecting commerce and industry;

- (e) to assist the people in the organisation of trade, commerce and industries; and
- (f) to investigate and recommend applications for concessions to His Highness's Government.

The important lines of work of this Department were also decided.

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They were:

- (a) Investigation and encouragement to industries;
- (b) Geological Survey;
- (c) Hand-loom Demonstration;
- (d) Fisheries;
- (e) Regulation of Joint Stock Concerns;
- (f) Administration of the Mining Act;
- (g) Boiler and Factory Inspection;
- (h) Bureau of Commercial Intelligence;
- (i) Press and Stationery Department;
- (j) Collection of Statistics; and
- (k) Administration of the Electricity Act.

With a view to associating the people in the work of developing the resources of the State on proper lines, the Industrial Advisory Committee was appointed by the Maharaja. The Committee consisted of 32 members, out of which 13 were non-officials. The non-official members were recruited from the districts, the Legislative Council, the Baroda City Municipality, the Baroda Chamber of Commerce and the Mill Owner's

Association. The main function of the Advisory Committee was to study local needs as regards industries, agriculture and forests, and advise the Department on economic development. This Committee was financed by the Government, and met once a year, though its sub-committee met more frequently.

The Economic Advisory Committee devoted its attention to the cotton seed-oil industry, tanning and fibre industries, improvement of the cotton staple, dyeing and other industries. A large number of duties which hampered trade were abolished and finally with a view to further stimulating trade and industries, export, import, octroi, and cotton duties were abolished in 1909. Certain inland customs in Kodinar (Amreli) and Okhamandal were revived in 1912, but in 1922 they were also abolished. This resulted into a conducive climate for industrial growth in the State. The response to the State's policy soon found expression in the establishment of Alembic Chemical Works at Baroda in 1907 by private enterprise. It was started as a small enterprise by T. K. Gajjar, A. S. Kotibhaskar and Raj Mitra B. D. Amin with the idea of starting the vital Indian industry on a scientific basis. This was the nucleus out of which has grown what is now known and famed throughout India as Alembic Chemical Works Company Limited. In the same year an expert, trained in America, was engaged to make experiments in Chrome Leather Tanning. In 1909 machinery for this industry was purchased, but it was sold out to a private company at cost before it went into production. Again, in the same year, a fully equipped Furniture Factory was started by the State under the manage-

ment 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 time that a complete generating plant for lighting the places and for supplying electricity and power to persons in Baroda City was installed. The State Public Works Department also set up a stone-working machinery at Motipura (near Baroda), but it was leased out to a private company. Many other attempts were made to start other new industries. Thus the process of industrialization was accelerated and continued.

#### Establishment of the Bank of Baroda, 1908:

Another important step, which was taken by the Maharaja for the development of industries, was the establishment of the Bank of Baroda in July 1908. Before it, the management of the State funds was carried out through State bankers i.e. 'Sahukars' who lent money on interest to the State. In 1875, Sir Raja T. Madhavrao organised State treasuries in the districts and in the talukas. Then he withdrew the State funds from Sahukars. In 1884, the Maharaja organised the Baroda Peddhi under the State's control. This Peddhi worked successfully. In course of time, the Maharaja felt the need for a modern banking institution for development. Therefore, in July 1908, he established the Bank of Baroda. With this, the Baroda Peddhi under the State control came to an end. It was sent into voluntary liquidation.

The significance of the establishment of the Bank of Baroda and its role in the industrial expansion can be well understood from the speech of the Chairman of the Board of Directors at the opening ceremony of the Bank on 19th July, 1908. He said, "our object is to encourage and promote the application of capital to industries as far as possible within the State itself and a separate Bank also will meet our needs. We will be in a position to closely study local requirements and local credits and thus be able to help local merchants with <sup>21</sup> greater confidence than any outside Bank can be". In short the Bank was started to finance the local industries.

The above mentioned steps of the Maharaja paved the way for a real advance in the direction of industrial progress in the State. All the well-established factories continued to work well and started expanding considerably. The Cotton Mills were adding more looms and spindles and the agents of all the successful mills and dyeing factories were starting new industries also. The weak and the struggling were also rehabilitated.

The Shree Sayaji Iron Works was added to the list of Baroda industries in 1914. It specialised in the manufacturing of agricultural implements like plant pullers and hoes on an economic scale to suit the purpose of the agriculturist.



During this period, the Economic Development Committee was appointed to enable officers and ryots to put forward their suggestions as to how the State 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 forest products, arts, commerce and industry.

The Committee submitted its comprehensive report in 1919 and the Government accepted some of the suggestions made by the Committee. The major suggestions were (i) the revision of the rules; and (ii) industrial education.

#### Revision of the Rules:

The rules for Government assistance to the industries in the State, which were first made in 1915, were now revised and made elaborate and liberal. The policy of the Government in this respect was embodied in the Government Notification dated 23rd March, 1920, which was as under:

- (a) "If any person or a company is desirous of starting some new industry in the State and is anxious to receive State help in the preliminary investigation, an application with full particulars

should be made to the Director of Commerce and Industries, Baroda State, Baroda.

- (b) On receipt of the application, the Director of Commerce and Industry, should consider the application bonafide, an enquiry into the prospects of the venture worth while, he would estimate the cost of the enquiry, of which the Government would bear a portion, usually a half, the applicant depositing his share.
- (c) If the enquiry should show that the industry could be organised profitably, the applicant must bear the whole cost otherwise the Government would refund the applicant's deposit.
- (d) The system of "co-operative investigation of industries" was reinforced by financial assistance from the State in the shape of debentures, a generous sum being laid aside for the purpose. The old policy of State enterprise was thus abandoned in favour of State-aided enterprise.
- (e) The Government of His Highness the Maharaja Gaekwad hoped that the promoters of the new industries in the State will take advantage of the liberal policy of His Highness and start new industries on a sound basis".

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This new policy is mentioned in one of those comments in Huzur orders: "Private enterprise is preferable to State investment, as Government interference can thereby be obviated; but the Government must take the lead, and must also offer substantial assistance, owing to the present apathy of the public. Further it is advisable to invest a portion of the State's money within the limits of the State

itself... Due precautions must be taken against a large increase of expenditure or assistance to private firms... No concession or help should be promised to industries unless the Government is assured to their profitable working".<sup>23</sup>

As a result of these liberal terms, the number of establishments rose from 86 in 1911 to 124 in 1921 and the number of persons employed rose from 9421 in 1911 to 11594 (8683 men and 2911 women) in 1921. Joint stock companies also rose in number from 39 in 1911 with a capital of 66 lakhs rupees to 88 lakhs rupees in 1921 with a capital of over 8 crore rupees. Since 1921, the number increased considerably.

#### Industrial Education:

The recommendations of the Committee on the matter of education fell in line with His Highness's own views and due weight was given to them since. As noted in laying the foundation of Industrial Development Scheme (1890-1905), the Maharaja made an effort to impart industrial and technical education in the State. He believed that the educated men should take up the field of industry and trade as it offered a wide scope for them.

During this period (1905-1926), in the field of technical education, the Baroda State was spending over Rs.1,30,000 a year. This

clearly shows the spirit and enthusiasm of the Maharaja for the development of industrial organisations.

#### Large Scale Industries: 1927-1941

The progress of the industrial development of the State during this period was really remarkable. The policy of industrialization of the State assumed the form of an intensive drive towards industrialization under the guidance of Sir V. T. Krishnamachari, the Dewan of the State (1927-1944).

Financial help was the chief feature of Government encouragement to the industrial enterprises of the State right from the accession of the Maharaja. At all stages of the history of the industrial development, the policy of the Maharaja for granting financial help was liberal. During this period, loans of Rs.6,30,500 were granted to 45 concerns as compared to Rs.2,90,000 to three concerns during 1914-1920. This proves that a bold and more liberal policy was followed by the State to promote industrial growth. It also sanctioned a special grant of Rs.28,000 every year as small loans, free of interest, to various cottage industries. Its main object was to improve the social and economic uplift of the masses. Before this, stress had also been laid on the development of the cottage industries by introducing several other schemes:

- (a) The Diamond Jubilee Cottage Industries Institute, Baroda;
- (b) Poultry Keeping;
- (c) Scholarships for training in various handicrafts;
- (d) Free financial aid to purchase implements;
- (e) Financial aid to co-operative societies of backward people; and
- (f) Financial grants to institutions.

Many concessions were also given, such as exemption from terminal tax, full or partially free use of natural resources, concession in water rates, subscription to the share capital and provision of technical experts.

Owing to the intensive drive towards industrialization, the number of operatives employed in industrial concerns coming under the Factory Act rose from 17,000 in 1927 to 41,101 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.1,164 lakhs and the number of towns rose from 50 in 1927 to 64 in 1941.

Another remarkable development towards the rapid growth of industries and trade in the State during this period was the development of Port Okha. The port at Okha was surveyed by the Royal Indian Marine in 1882, but the real work could not be started before 1922. Then the Maharaja took an active interest and soon it was completed in 1925. It was formally opened in 1927. Within 18 months of the opening

of the Port, the Virangam Cordon was re-established, 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 the Baroda State suffered a great loss in the customs revenue. In order to solve the reconfirmation of the customs right, the Baroda State started negotiations with the Government of India. The negotiations resulted into a success end mainly due to the contribution of Sir V. T. Krishnamachari, the Dewan of the Baroda State. An agreement with the Government of India was concluded in 1936. The main features of this agreement were:

- (i) "The State will retain the revenue from customs duties levied on foreign goods imported at its ports, subject to a maximum equal to the estimated revenue derived from the consumption of such goods in the territories of the State.
- (ii) Foreign goods which have been imported at British Indian ports and there subjected to customs duty will be admitted free of duty to the territories of the State, and goods have paid duty at the State's ports will be admitted free of duty into British India.
- (iii) British Indian ports and State's ports will thus be free to serve their economic hinterland without any obstruction arising from the necessity of securing that the customs revenue from particular imported goods accrues to the State or to the British Indian treasury, according to the location of the markets to which the goods are consigned".

In this way an amicable settlement was arrived between the two. Since then the Okha Port made considerable contribution to the development of the trade and industries in the State.

Textile Industry:

Regarding the progress of textile industry, the record of the State during this period was remarkable. The following table gives an idea of the progress of the textile industry:

Year	No. of Mills	Capital in Lakhs	Looms	Spindles	Persons Employed Daily on an Average
1926-1927 To 1930-1931	10 To 14	170	3,532	2,31,000	8,789
1931-1932 To 1935-1936	14 To 15	248	5,865	2,81,000	12,940
1936-1937 To 1940-1941	15 To 19	348	6,874	3,25,732	22,953

The table shows the growth over a period of every five years from 1926-1927 to 1940-1941.

The number of Textile Mills in the State increased from 10 to 14 between 1926-1927 and 1930-1931, 14 to 15 between 1931-1932 and 1935-1936 and 15 to 19 between 1936-1937 and 1940-1941. Out of the 19 mills, 17 mills were cotton and 2 were woollen. Out of the 17 cotton mills, 2 were spinning mills while the rest were spinning and weaving mills.

Owing to the impact of Great World Economic Depression and other natural calamities, the period between 1931 and 1936 did not show much increase in the number of textile mills though the capital invested in these mills showed an increase from Rs.170 lakhs to Rs.248 lakhs and by 1940-1941 capital investment had reached Rs.384 lakhs. The looms and spindles were also increased considerably. The number of operatives employed in these mills showed an increase from 8,789 in 1930-1931 to 12,940 in 1935-1936 and to 23,953 in 1940-1941.

Besides the cotton and woollen mills, there were waste cotton spinning plants, sewing thread industry and a plant to manufacture bobbins, pickers and shuttles, supplementing the textile industry. There was one waste-cotton spinning plant which produced 1,600 lbs of yarn of about 6 counts per one shift. The sewing-thread industry was started at Kalol (North Gujarat). The capacity of this plant was 4,000 lbs per day for 20 counts thread. This industry made a remarkable progress, so a proposal was made to extend this plant by installing more thread-making machines. For the manufacture of bobbins, shuttles and other wooden parts required for cotton and jute mills, a factory was started at Navsari. This factory was working exclusively for the requirements of the jute mills of Bengal. Another mill at Billimora was started for the manufacture of these textile auxiliaries.



### Chemical Industry:

Next to the textile, the second largest industry in the State was the chemical industry. It occupied an important place in the whole of India and made a rapid progress in the State.

Besides the Alembic Chemical Works, which was established in 1907, several other chemical works such as the Tata Chemical Works, the Baroda Chemical Works, the Petlad Chemical Works, the Billimora Chemical Works, and other small concerns were established and they made a rapid progress during this phase. Among the new concerns, the most important concern not only in the State but also in the whole of India, was the Mithapur Tata Chemical Works. It was manufacturing magnesium chloride, potassium chloride and epsom salt.

### Manufacture:

Besides, the central institution, known as Kalabhavan, which was established in 1890, three more branches namely G.B.S. Workshop, district industrial schools at Petlad, Patan and Amreli and the J.N. Tata Hunnarshala (Craft Institute), Navsari and Chimanabai Industrial Home, Baroda were started during this period. All these institutions gave training to the students for manufacturing various articles.

- In the field of iron manufacture, two important concerns namely,
- (i) The Sayaji Iron Works; and
  - (ii) The Baroda Bolt and Engineering Works made a remarkable progress.

The Sayaji Iron Works manufactured agricultural implements, cast iron articles like pipes, sluice valves, machinery for road building and bleaching machines for textile mills. The Baroda Bolt and Engineering Works manufactured nuts and bolts and dog-<sup>29</sup> spikes and rivets. Besides these, the G.B.S. Railway Works manufactured drilling machines, sterilizers and such other articles.

#### Other Industries:

During this period, many other industries had also come up. Among them, the Salt industry at Mithapur (situated on the north-west corner of Kathiawad near Okha), the Cement industry at Dwarka, the Match industry at Petlad, Baroda and Billimora, the Sugar industry at Gandevi Taluka of Navsari District, Refining of China clay at Baroda and the manufacture of Rubber products at Baroda were the most important. All these industries made rapid progress in their production. Since then several new concerns were started and several schemes of starting new industries in the State were proposed and implemented accordingly. By the end of 1938-1939, there were 57 permanent and 115 seasonal factories in the entire of the Baroda State.

## CHAPTER IV

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29. The Gaekwad Baroda State Railway : It was called G.B.S.R. before independence.

30. Huzur Political Office File No. 221/5-B of the year 1938-39.  
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