

INDIAN INDUSTRY AND ITS PROBLEMS

VOL. I. FACTORS IN INDUSTRIAL DEVELOPMENT

BY

H. R. SONI, M.A., M.Sc. (ECON.), LONDON DEPARTMENT OF ROOMONIOS, BENARES HINDU UNIVERSITY

Thesis approved for the Degree of Doctor of Science (Economics) in the University of London

LONGMANS, GREEN AND CO. LTD.
LONDON - NEW YORK - TORONTO
CALCUTTA - BOMBAY - MADRAS
1932

By the same author

(To be published shortly)

INDIAN INDUSTRY AND ITS PROBLEMS

VOLUME II

Industries of the Basic Order

VOLUME. III

Non-Basic Industries

TO

Dr. GILBERT SLATER, a token of gratitude for his many kindnesses

PREFACE.

Since the beginning of the present century a loud chorus of protests and complaints against the industrial policy of the Government has been emanating from the platform, the newspaper press, and the publications of professional economists in India; but all these splashings of printer's ink and oral expressions of indignation have not so far resulted even in the formulation of a plan of action, far less in action itself. The only tangible result of this long agitation has been that a regular procession of Royal and plain Commissions has marched past the scene during the past few years. They are all supposed to have left behind a carefully-constructed engine to haul Indian industry along the road to progress. And vet during all these years industry in India has obstinately refused to move an inch onward. Where lies the fault?

It seems that these engines were not complete units at all; they were only parts of a machine-unit, and, what is more unfortunate, they were indifferently constructed by different batches of designers and craftsmen who were, moreover, never given a chance to co-operate. The products of this motley crowd of workmen were clumsy in shape and form, and, designed as they were under widely different conditions and at different times. were turned out more or less according to the whims and fancies of a particular batch of designers and not according to the requirements of other component parts of the machine. The result was that, try as our rulers might, 'ese parts could never be fitted together to form a co. plete machine-unit. Moreover, quite a number of vital arts were missing, which no one ever cared to provide. In these volumes an attempt has been made to re-shape the defective parts, to provide the missing nuts and wheels, and to fit the lot together into a complete, workable machine-unit.

Although, in conformity with the time-honoured principles, I have divided my plan of industrial

reconstruction into three parts, and devoted a separate volume to each part, it cannot be broken up and dealt with piecemeal. It is obvious that neither basic nor non-basic industries will flourish until the problems relating to power supply, labour, finance, fiscal policy, transport, and various forms of direct and indirect State assistance to industry have been definitely solved. Again, it would not be possible to expedite the development of non-basic industries so long as basic industries are not established on sound lines; and it would not be possible to take any action with a view to establish the various basic and non-basic industries in the country without a thorough examination of the conditions governing the establishment of these industries. facts speak for the unity, or rather the indivisibility, of my plan for all practical and theoretical purposes.

The practical efficacy of the plan I have presented cannot be established by argument; but I hope I have provided sufficient data in these volumes to prove that if a solution of the problem of industrial development is ever sought in India, a beginning will have to be made on the lines identical to those suggested by me. Indeed, I am prepared to go so far as to assert that although practical experience will necessitate readjustments and changes in the programme of industrial reconstruction, those readjustments and changes will affect only the details of action and not the principles on which this

plan is based.

It will be noticed that I have furnished a historical background in my treatment of various main topics. These historical portions, however well-set, may appear to be rather superfluous in a work aiming, so to speak, at grasping the future, but it will be conceded that in avoiding mistakes and settling controversies nothing is more effective and useful than an appeal to history.

One more objection I feel bound to meet in advance—the objection that in estimating the potentialities of India's financial resources and in calculating the cost of power in the coal zone I have made my conclusions less dependable and convincing by using data which are not quite up-to-date. I have only to say that the omission

Since the year 1928 financial conditions is deliberate. in India, as all over the world, have been so abnormal that in order to explain away the various abnormalities in connection with banking deposits and new flotations long digressions would have been necessary; and these digressions would not have served any useful purpose, especially as I could by no means base my estimates on the data relating to abnormal times. In these circumstances it would have been unscientific not to depend on the pre-depression figures as the basis of calculation. Similar considerations are responsible for my dependence on comparatively old data in connection with power During the past four years industry in Europe and America has been in a state of collapse, with the result that power stations have been operating on extraordinarily low loads; and this has been naturally reflected in the average cost of power. In these circumstances I could not afford to be very punctilious in selecting the most up-to-date data. Moreover, recent statistics suggest that, load factor apart, periodical variations in different items comprising the total working cost tend to follow the same course in every country, so that the index numbers for the total working cost do not show any startling dissimilarities from country to If that be a correct view, it would not be unscientific to use my data as a basis of calculation for a number of years to come.

I have just one more explanation to offer. It will be noticed that in dealing with the problems of labour I have not referred to the report of the Whitley Commission, although I have made full use of the evidence collected by them at various centres. This extraordinary conduct is explained by the fact that the chapters on labour were completed in December, 1930, while the Commission's report was not published till August, 1931. In these circumstances I had no other alternative but to incorporate the evidence (which was being broadcast by press correspondents in those days) in this work without waiting for the Commission's report. I had certainly plenty of time to incorporate the recommendations of the Commission; but as I found my own views and

ideas diametrically opposed to those of the Commission in many important particulars, I decided to leave the report severely alone. I have given plenty of facts and arguments in support of my own contentions, so that I feel that any direct criticism of the Commission's findings and recommendations would be superfluous.

As these volumes are meant more for laymen than for "highbrow" technicians, I have endeavoured to explain the various technicalities—especially those relating to the manufacturing processes—in as simple and popular a language as possible. While speaking of the language I have employed, I am reminded of some curiositystricken manuscript readers' criticism of certain unvarnished phrases I have used in tracing the economic consequences of viciousness, dishonesty, and corruption; but I can always justify my action by retorting that in speaking of matters affecting the destiny of a people nothing is gained and everything is lost by not calling a spade a spade.

I am not so fortunate as to be able to conclude this preface in the customary fashion. There is no one whom I could thank for correcting the proofs, or even for preparing the index. It would, however, be sheer ingratitude if I do not acknowledge the kindness of numerous Indian, British, German, French, Belgian, and other Continental factory owners and managers in granting me facilities for conducting my investigations. also owe a debt of gratitude to a number of British technicians and writers on technical subjects with whom I was brought in contact by my work, and who often went out of their way to help me.

H. R. Soni.

DEPARTMENT OF ECONOMICS, BENARES HINDU UNIVERSITY. November 17, 1932.

CONTENTS

VOLUME I

FACTORS IN INDUSTRIAL DEVELOPMENT

CHAP.				Pagi
	Preliminary Survey	••	••	1
I.	Raw Materials	••	• •	39
II.	Sources of Heat and Powe	e r		80
III.	Sources of Heat and Powe	er (continued	l)	118
IV.	Finance and Management			165
٧.	Finance and Management	(continued)		202
VI.	Labour	••		240
VIL.	Labour (continued)	• •		296
VIII.	State Action	• •	•	332
IX.	State Action (continued)	• •		382

INDEX

Accidents, in factories, 281n. Cattle in India, 55. Agriculture, improvements in tech-Cawnpore Technological Institute, 389. nique of, 50. Cement industry, 17. Census of India, Report of, 250n. Agricultural products, position of, 49 et 20g. Akbar, 1. 251n. Alcohol habit, 325. Chatterton, Sir Alfred, 349, 351. All India Trade Union Congress, Chawla, 264 et seq. Chemical industry, 172n. 284-85. Chicago Power Station, 113. Animal Products, 55 et seq. Artificial Silk, 53n. Chowdhury, Mr. K. C. Roy, 254. Chromium ore, 65. Associated Chambers of Commerce, Clays, 70-71. 175 Aurangzeb, 1, 3, 5, 10. Cleveland, 103. Australia, 336-37. Clyde Valley Electric Company, Austria, 151, 335. 121. Coal, 12, 14, 67, 68, 83. Bellard, Mr., 272. Cost of, in India, 85, 127 et seq. Banking facilities, 234. Cost of, in Britain, 127 et seq. failures, 187, 190, 193. Conservation Committee, Bri-Barton Power Station, 113, 130, tish, 105. 131, 138. Consumption of, in British power Baryton, 74, 75. stations, 111 et seq. Basic industries, 362, 411-12. Dust, employment of, 110. Bauxite, 66. Distillation products, 100, 108, Belgium, 151, 152, 335. 109. Bengal Tanning Institute, 390. Mining industry, 223-24, 252. Zone, 85 et seq, industries in, Bolton, 131, 132, 133, 137. Bombay Improvement Trust, 267. 90 et seq. Municipality, 267. Coastal Reservation Bill, 388n. Port Trust, 267 et seq. Shipping, 418. Cost of power in, 98. Borax, 74, 75. Bounties, 226, 380, 421, 426-27. Cobalt, 66. Coking coal, 67. Cologne, 102. Bradford, 134, 137. Compensation for accidents, 281. Britain, and Indian industries, 2 et Constitution, in relation to industrial policy, 431 et seq. Continental countries, 122. Relations of India with, 4 et seq. British investments in India, 175 Co-operative banks, 189-90. Societies, 320 et seq. es eeq. Navigation Laws, 6. Copper ore, 62, 75, 76, 77. Corundum, 74, 75. Corruption, 207-208. Cotton, 41, 42, 43n. Burma Corporation, 63. Bury Power Station, 112. Calcutta Corporation, 155 et seq. Canada, 150, 151, 336. Industry, 1, 2, 5, 16 et seq., Capital, investment of, per hand 346 et eeq. Crawford Avenue Power Station. employed, 24. Scarcity of, 19, 205 et seq. see Chicago Power Station. Carbonization, 100. Carville B. Power Station, 113. Crewe, Lord, 354. Cross-breeding, 60.

Cuba, 47. Cunningham, Dr. W., 322n, 333n. Curzon, Lord, 351.

Dalmarnock Power Station, 113.
Deficiencies in industrial organization, 19-20.
Demonstration factories, 365, 404.
Departments, of Agriculture, 42,
43.
of Industries, 364, 366, 383,
384, 385.
Detroit, 103.
Directors of Industries, 355.
Dunston Power Station, 113.
Duties on cotton goods, 347-48.

East India Company, 342, et seq. Education, 13, 14, 31, 33, et seq., 285 et seq., 311, 319, 413. Acts, 259 et seq., 402. Efficiency of Indian labour, 315,

318.

Egypt, 42.

Electricity, as a source of power, 81 et seq. Acts, British, 101, 161. Commissioners, British, 95, 112.

Commissioners, British, 95, 112. Electrical industry, participation of State in, 153 et seq., 157 et seq.; and local authorities, 154-55.

Electrification of industry, 99 et seq. in Britain, 102. in India, 104.

in the United States, 103. Electro-chemical industries, 91, 93, 94.

Eletro-metallurgical industries, 91, 93, 94.
Employment Bureaux, 320 et seq.

England, protection in, 4. Engineering industry, 172n.

Exchange banks, 186, 188, 189n, 191. Excise duties, 228.

Export duties, 427-28. External Capital Committee, 230.

Factories, number of, 18.
Factory Labour Commission, 273.
system, introduction of, 9 et seq.
legislation, 270 et seq.
Ferro-alloys, 107-08.
Financial assistance to industries,
395, 428 et seq.
stringency, 385.

Fines, 278, 279. Fiscal Commission, Indian, 209 et seq., 212 et seq., 230 et seq., 375, 398, 407. Fiscal policy, 367, 422. Flax, 44, 45. Fluor spar, 74-75. Foreign control of industry, 217 et seq. Foreign capital, 209 et seq., 224 et seq. Foremen, recruitment of, 256 et seq. Forests, 228. Forest products, 51-52. Department, 48, 53. Organization, 52-53. Research Institute, 392. France, 101, 151, 154, 335, 338. Fuller's earth, 71.

Generating plants, cost of, in India, 118-19.

Geological Survey of India, 62, 63, 64, 66, 69n, 70, 71, 75, 77.

Germany, 101, 102, 116, 119, 127, 129, 131, 152, 235, 236, 237, 335, 336, 338.

Gibson, Mr. A. J., 54n.

Glasgow, 130, 131, 132, 137.

Glass industry, 17.

making materials, 69.

Gold, imports of, 198.

reserves of, 198.

Graphite, 74.

Grove Road Power Station, 113.

Handicrafts, decay of, 1. Harbours, 388, 419. Hardinge, Lord, 358. Harvey, Leonard, 96-97. Hawaii, sugar-cane cultivation in, 47. Hell Gate Power Station, see New York. Hewett, Sir John, 352. Hides and skins, 56. Hoarding, practice of, 191, 194. consequences of, 198 et seq. Holdings, smallness of, 50, 247. Hours of work, 271 et seq., 312 et Housing, 263, 266 et seq., 307 et seq., 414. Hundis, 183. Hurst, B., 263.

Hydro-electric power, amount available in India, 89 et seq. Survey of India, 87, 89.

Imperial Bank of India, 184 et seq.
Imperial preference, 278-79.
Import duties, 421.
Indigo, 6.
Industrial banks, 235 et seq.

State aid to, 238.

Industrial Commission, Indian, 55, 104, 203, 233, 264n, 350, 351, 359, 361 at seq., 383, 407.

Industrialism, evolution of in India.

Industrialism, evolution of, in India, 15 st seq. Industrialization, and poverty, 21

et seq., and middle class employment, 35 et seq. Industrial Revolution, 1 et seq. Industrial policy, 406, 431 et seq.

survey, 422. Industrial Service, Indian, 366, 370. Industries, localization in India, 123.

development of, in India, 167; decline of, 9 at seq.

extent of, in India, 18.
Institute of Science, Indian, 392.
International Labour Conference,
274n.

Iron and steel industry, 1, 172n. Iron ore, 61, 62. Italy, 101, 150, 151, 154, 335.

Jamshedpur Technological Institute, 389.
Japan, 236, 335, 336, 338.
Java, sugar-cane cultivation in, 47.
Joint-stock banks, Indian, 186 et seq., 191.
Joint stock companies, 174-75, 177 et seq., 420.
Jones, R. G., 292n, 295.
Jute, 45-46.

industry, 17.

Kelman, J. H., 263.

Labour, Chapa. VI, VII.

Commission, 254, 258, 259, 270, 284, 286, 228.

efficiency of, 287 et seq., 289. in organised industries, 243 et seq.

migratory character of, 244 et seq.

sources of supply, 246 et seq.

cost of, in electrical industry, 130 et seq.
Lancashire, 138.
Lead-ore, 63, 64, 76.
League of Nations, 273.
Leeds, 130, 131, 132, 134, 136.
Lignite, 102.
Limestone, 74, 75, 76, 77.
Linen, 44-45.
Liquid fuels, 82, 83n.
Lloyd George, Mr. David, 273.
Load factor, bearing on power cost, 147 et seq.

Magnesite, 73.
Malaya Peninsula, 48.
Management charges in power stations, 134.
Manchester, 121, 131, 132, 134, 137, 138, 140, 141.
Manchester Chamber of Commerce, 273.

Mandi Power Scheme, 148.

Manganese-ore, 65.

Matermity benefits, 280.

McRoberts, Sir Alexander, 289.

Medical aid, 280.

Mercantile Marine Committee, 387n.

Mersey Power Company, 113, 121.

Merz, Mr. E., 105.

Mica, 71, 72.

mining, 252.

Migration, 305, 307.

Mineral oil, 68.
industry, 224.
Mineral products, position of, 75
et seq.

et seq.
Minerals, 61 et seq.
Moghal Empire, 11, 12.
Molybdenum, 66.
Monazite, 74-75.
Moneylenders, 182 et seq., 321.
Moore, Major, 272.
Morley, Lord, 352, 354, 357.
Munitions Board, Indian, 360.

Nair, Dr. T. N., 273.
Newcastle Electrical Supply Company, 120.
New York Power Station, 114.
New Zealand, 337.
Nickel-ore, 66.
North Tees Power Station, 113.
Norway, 101.

Oil, charges for, in power stations, 130.

Oilseeds, production of, 46. Oldham, 134, 137.

Paper industry, 17. pulp, 53n. Percival Lane Power Station, 113. Pioneer factories, 394 et seq. Plantations, 53. Porcelain, 70. Post Office savings banks, 190-91. Poverty in India, 20 et seq. Power, Sources of, Chaps. II, III. requirements of British industries, 95 et seq. requirements of industries in water power zone, 89 et seq. cost of, in coal zone, 142-43, 146, 149, 152. cost of, in Calcutta, 145-46. cost of, in water power zone, 148 et seq. cost of, in European countries, 150 et seq. cost of, in America, 150 et seq. non-industrial demand for, in Britain, 144-45. and State enterprise, 163. economics of, 110 et seq. stations, expenditure on, in Britain, 111. Precious metals, consumption of, in India, 198, 200. craving for, in India, 200-01. Presidency Banks, 184 et seq. Acts, 185, 188, 189n, 191. Private companies, 230. Prohibition, 325. Protection, 377, 380, 424 et seq., 431. Protective duties, 228. Prussia, 102, 334, 335. Pykara power scheme, 148.

Quigley, Mr. Hugh, 96, 97, 113, 121, 122, 149, 150.

Radcliffe Power Station, 113.
Railways, 89n, 372-73, 416.
Railway reconstruction programme, 400n.
Rates, 133 et seq.
Raw Materials, Chap. I, 362.
meaning of, 39-40.
Recruitment of labour, 253 et seq.
Redmayne, Sir Richard, 105.
Reform Act, 370 et seq., 398.
Reformed Constitution, 383 et seq.

Reichsbank, 236. Remuneration of labour, methods of, 275. Rents, 133 et seq. Repair charges in electrical industry, 130 et seq. Research, 391 et seq., 422, 428. Retrenchment Committee, 385. Rhenish-Westphalian electrical works, 154. Road Development Committee, 387, 417. Road transport, 417. Rogers, A., 42n. Rosin, 54-55n. Rubber, 48, 49. Rupee Companies, 177 et seq.

Sardars, 254. Saxony, 102. School of Mines, Indian, 389. Self-sufficiency as an ideal, 28 et Sheffield Corporation generating 121, 131, 132, 134, station, 137, 140. Ship building industry, 5. Shirras, Mr. Findlay, 183. Shroffs, 195. Silk industry, 5, 17. Silver, imports of, 198. Simon Commission, 175. Simpson, Sir Clement, 288, 290, 291, 293. Skilled labour, wages of, 276 et seq. Slater, Dr. Gilbert, 219, 226, 227, 290. South Africa, 336, 337. South American States, 72. Standard of living, 262. State Action, Chaps. VIII, IX. history of, 332 et seq. main lines of, 337 et seq. Steel industry, 211. Stores Department, 383-84, 386, 388. Strikes, 285n, 286. Stuart, Dr. M., 71. Sugarcane, cultivation of, in India, 47, 48. Sugar Committee, Indian, 47. industry, 5, 17. Sulphur, 69n, 76. Swedish Match Trust, 215n. Switzerland, 150, 151.

Tanneries, 257. Tanning materials, 54. Tariff Board, Indian, 378, 381, 384, 386 et seq., 425. Tates, 265, 289. Tata Iron and Steel Works, 17. Taxes in electrical industry, 133 et seq. Technical education, 389 et seq., 401 et seg. assistance to industries, 410-11. Timber, production and uses of, 52. Tin-ore, 64.
Trade Unions, 283 et seq., 317 et Transmission plants, cost of, in India, 119-20; in Britain, 120 et seq., new centres of industry, 128. Transport facilities, 415-16. Tunguten-cre, 65. Unemployment insurance, 282, 311. Unemployment, middle class, 30 et eog., 221. United Kingdom, 95, 96, 98, 101, 111, 114, 116, 119, 122, 126, 127, 129, 132, 133, 134, 143, 144, 147, 152, 153. United States, 42, 101, 103, 116, 119, 129, 131, 132, 150, 151, 335, 336. Universities in India, 31 et seq. University education, 31 et seq. Unskilled labour, wages of, 278 es seq.

Voterinary Department, 60.

Village artisans, 247. life in, 262. menials from, in industry, 248. Wages, 315 et seq. Wallassy Power Station, 112. Washington Conventions, 275, 281, Water, cost of in electrical industry, 130. Waterfalls, 11. employment of, in England 80. Water power zone, Indian 87 et amount of power available in. 89 et seq. probable cost of power in. 98-99. Wealth, creation of, as an end, 28. Welfare work, 279 et seq. Westphalia, 102. White, Major Norman, 323. Whitley Commission, see Labour Commission. Wigan Power Station, 112. Wolfram, 66. Wood, as a source of power, 83. Wood-pulp, 53n. Wool, production of, 58, 59. quality of, 58. imports of, 58-59. Woollen industry, 6, 17. Working costs in electrical in-dustry, 34 et seq. Workmen's Compensation Act, 281. Yoker Power Station, 113.

Zinc ores, 63, 65, 76, 77.