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PUBLIC MEMORIAL TO THE LATE MR. J. N. TATA, BOMBAY.

IRON AND STEEL IN INDIA

A CHAPTER FROM THE LIFE OF
JAMSHEDJI N. TATA

BY
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FOREWORD

It is necessary only briefly to explain the circumstances which have led to the publication of this chapter from the life of Mr. Jamshedji Tata. Immediately on the death of Mr. Tata arrangements were made to prepare an adequate account of his life and work. The task was undertaken by Mr. Lovat Fraser ; but various circumstances have delayed the completion of the biography. Meantime the war brought to the forefront the greatest of Mr. Tata's enterprises. The armies in Mesopotamia, East Africa and Palestine were largely equipped and maintained from India. Cut off from supplies from the East and the West, the resources of India could not have been mobilised for this service if the Tata Iron and Steel Works at Jamshedpur had not furnished a continuous supply of rails ~~for~~ the Indian railways and for the strategic lines which allowed our troops to push forward to decisive victory in Palestine and Mesopotamia. Now the war is over the works are destined to form the trunk from which will spring a variety of vigorous industrial branch industries with iron and steel as the bases of manufacture.

It has therefore been thought desirable not further to delay the publication of the remarkable story of patient achievement in the face of immense difficulties which induced the firm establishment of these works in the jungles of Chota Nagpur—works which have assumed a national, nay, an Imperial importance. With the approval of Sir Dorab Tata and the consent of the author, this chapter is separately issued with appendices describing the growth of the works and their subsidiaries. The chapter will be incorporated in the complete biography when it is published.

STANLEY REED.

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APPENDIX A.

FLOTATION AND FINANCE.

The Tata Iron and Steel Company, Limited, with an authorized capital of Rs. 2,31,75,000 (£1,545,000), was formed in 1907, and was registered in Bombay on the 26th August 1907. The Capital of the Company was divided into 50,000 6% Preference Shares of Rs. 150 each, 2,00,000 Ordinary Shares of Rs. 75 each, and 22,500 Deferred Shares of Rs. 30 each, making a total Capital of Rs. 2,31,75,000. The objects of the Company were stated in the prospectus to be the establishment "in India of Blast Furnaces, Open Hearth Steel Furnaces, Rolling Mills, Coke Ovens, and other plant necessary for the manufacture of pig iron, steel rails, bars, plates, etc., and for these purposes to acquire mining rights over very valuable and large deposits of iron ore." The total Capital of the new Company was subscribed by the Indian public in the remarkably short space of a few weeks, the number of shareholders being about 7,000.

The properties, prospecting license and other rights acquired by Messrs. Tata, Sons & Co., together with the freight concessions and other privileges granted by the Government of India were then taken over from them by the newly formed Company. Messrs. Tata, Sons & Co., were appointed the Company's Agents, and Sir Dorabji Tata was appointed Chairman of the Board of Directors, which, besides himself included seven other Indian gentlemen well-known in the Indian business-world.

The original Capital of the Company of Rs. 2,31,75,000 was increased to Rs. 3,52,12,500 by a Special Resolution of the Company passed on the 12th day of December 1916 and confirmed on the 11th day of January 1917 and again increased to Rs. 10,52,12,500 by a Special Resolution of the Company passed and confirmed on the 7th and 22nd days of November 1918, respectively.

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The Debenture Capital of the Company, all of which has not yet been issued, is Rs. 2,25,00,000. The total capital of the Company, including debentures, therefore, amounts to Rs. 12,77,12,500.

It would be interesting at this stage to state the present financial position of the Company up to the year ending 31st March 1919. The total net profits made by the Company up to 31st March 1919 came to about Rs. 3,85,23,753. Out of this the Company has paid up to now the following dividends:—

	Rs.
Preference Shares	32,78,758
Ordinary Shares	1,11,43,359
Deferred Shares	53,25,000
Total Rs. ..	1,97,47,117

Besides the payment of dividends amounting to Rs. 1,97,47,117 the Company has wiped off all the preliminary expenses which amounted to Rs. 5,33,000 and has carried the following amounts to the Depreciation, Reserve, and Repairs and Renewal accounts:—

	Rs.
Depreciation.. .. .	1,28,91,037
Reserve	15,35,440
Repairs and Renewal	15,59,258
Total Rs. ..	1,59,85,735

APPENDIX B.

OPERATION PROGRESS.

The present plant comprises the following Departments besides the usual Boiler and Power House, Machine shop, Foundry, Pattern shop, etc.

COKE OVENS.

A battery of 180 Coppee Non-Recovery Bye-Product Coke Ovens, with the necessary equipment for the crushing and handling of coal, and 50 Kopper's Bye-product Coke Ovens together with the Bye-Product and Sulphuric acid Plants.

BLAST FURNACES.

Two Blast Furnaces each of 350 tons capacity per day, with brick-lined hot blast stoves, chimneys, dust-catchers, slag ladles, 30-ton brick-lined ladles for transporting the iron to the Steel Works, travelling cranes, and electric lorries and automatic skip-hoists for charging material. An additional furnace, known as the Batelle furnace, with a capacity of 300-tons a day has recently been installed and lighted.

STEEL WORKS.

One 300-ton hot metal mixer and six Open Hearth Furnaces, four of which are of 50-ton capacity and two of 60-ton capacity.

BLOOMING MILL.

One 40-inch reversing Blooming Mill.

One 28-inch Reversing Combination Rail and Structural Mill with roller-table, re-heating furnaces, hot saw, cooling beds, rail beds, cranes, and all necessary machinery for finishing.

BAR MILLS.

One 16-inch and two 10-inch Rolling Mills.

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The Coke Ovens were the first to start work, the Blast Furnaces next, then the Steel Works and Rolling Mills. This is also the natural order in which the coal, iron ore, and other materials of production pass from their raw stage into the finished product. The Coke Ovens must produce coke before the iron ore can be smelted in the Blast Furnaces and converted into pig iron. The iron in turn becomes the raw material for steel and is sent to the Open Hearth Furnaces which convert it into steel. The liquid steel is then cast in the form of large rectangular pieces called "ingots." The ingots are then made to pass through the Blooming or Cogging Mill which reduces their size and converts them into blooms and billets. The work of rolling the blooms and billets into rails, beams, bars, angles, channels, fish-plates, etc., is performed by the 28-inch Mill and the Bar Mills, and the finishing department which is attached to the Rolling Mills puts the finishing touches to the various products. The Company's steel has to pass a strict test in the Government Laboratory before it is despatched from the Yard to its respective destinations.

A brief review may now be given of the progress of the production departments, commencing with the coke ovens.

THE COKE OVENS.

The plant in this department originally consisted of a battery of 180 Coppee Ovens of the Non-recovery type; and it came into operation in September 1911. In order to make permanent provision for a greatly increased output of coke and to obtain and utilize the valuable bye-products resulting from its manufacture, it was decided to make an addition to the plant of a fresh battery of ovens of the bye-product recovery type. In 1914, the Company entered into a contract for the installation and construction of 50 Koppers Coke Ovens and Bye-Product Plant for the recovery of coal tar and gas, and the manufacture of sulphate of ammonia. In connection with this

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a Simon Carve Sulphuric Acid Plant with a daily capacity of 5 tons of acid has been installed. The work of constructing the Bye-Product Ovens was commenced in July of that year. The Coke Ovens proper were completed in the beginning of 1916 and the Bye-Product Plant a few months later.

The Plant has been so arranged that an additional battery of 50 Ovens can be subsequently erected continuous to the new ovens, and the Bye-Product Plant has been constructed to provide for its subsequent duplication without interfering with the existing arrangements.

With the installation of the new ovens which came into operation in August 1916, the 60 Drag Ovens were discarded. It has not been found feasible to discard the other battery of Coppee Non-recovery Ovens, but the waste gases from 45 of the ovens are at present utilised to operate a power plant and thus economise coal. In course of time the non-recovery ovens will be either altered or discarded in favour of bye-product recovery ovens. The valuable bye-products which are at present recovered from the Koppers Ovens are coal gas, coal tar, and sulphate of ammonia.

THE BLAST FURNACE PLANT.

The Blast Furnace Plant consists of two Blast Furnaces 77 feet by 19 feet and 12 ft. diameter hearth, equipped with up-to-date charging and weighing apparatus and four Cowper-Kennedy Stoves.

When the works were started, only one furnace was in operation and as the entire Blast Furnace crew had been engaged at the end of 1911 it was found practicable to run it almost entirely on American labour. The second furnace was blown in on 22nd September 1912. There were some initial difficulties which are usual with this kind of work, but after these were put right, both the furnaces worked without a hitch, producing a record tonnage.

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The maximum output has been a little over 15,000 tons per month.

The great increase in price of Ferro-Manganese due to the War, led the Management to consider the advisability of manufacturing it from the Company's own Manganese Ore. Accordingly, in the month of October 1915, one of the Blast Furnaces was put on Ferro-Manganese.

The Pig Iron produced by the Works has been of uniformly excellent quality and equal in quality to the best imported brands. During the first three years of operation the production was in excess of the demand. Throughout 1913, the pig iron market suffered from heavy depression, prices sagged very low, and large stocks were left on hand unsold. Towards the end of 1914, the market improved and prices continued to advance, so that the demand now keeps abreast of the production of pig iron.

In 1915 a new foundry for the manufacture of cast iron pot sleepers was added to the Works, and it has been making pot sleepers for the Indian Railways since September 1915. Thus a new product has been added to the list of manufactured articles, and an increased proportion of the production of pig iron produced is profitably utilized. Before the prohibition of pig iron export from India came into force, shipments varying in size were made to Burma, the Straits Settlements, Ceylon, Java, Manchuria, Japan, Australia, New Zealand, United States, etc.

The slag which is formed in the manufacture of pig iron is now made use of in making granulated slag bricks for local use. The bricks thus made are found to be more durable than ordinary red bricks.

THE STEEL WORKS.

The steel works plant originally consisted of one 300 ton furnace, known as the "Mixer," and four stationary Open Hearth Furnaces, each with a capacity of 50 tons per "heat." They

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were designed for a capacity of 40 tons per "heat," but in January 1914 the designs were altered and the capacity of each furnace was enlarged to 50 tons per "heat."

The liquid pig iron is conveyed from the Blast Furnace to the Steel Works in 30 ton brick lined ladles and poured into the Mixer, which receives all the hot metal from the Blast Furnaces, preparatory to its conversion into steel. From the Mixer the iron is tapped out into ladles and charged into the Open Hearth Furnaces for conversion into steel. When the process of conversion is over, which takes on an average about 8 to 10 hours, the liquid steel is tapped and cast into "ingots," which are then sent on to Soaking Pits to be ready for the Blooming Mill.

There are at present three Soaking Pits which are placed in the Steel Works building. This is a great advantage in a country like India from the point of view of temperature. The Soaking Pits are equipped with mechanically operated lids and an electric overhead charging and drawing crane. The ingots measure in section 21" x 19" and weigh about 2 to 3 tons each. They are taken by a self-tipping electric trolley to the mill tables.

The first heat from the Open Hearth Furnaces was tapped on 16th February 1912. Two additional Open Hearth Furnaces with a capacity of 60 tons per heat were completed and put in operation in 1917.

Until the outbreak of the war, the Open Hearth Furnaces were worked by German labour. There were 40 covenanted hands in 1912. At the outbreak of the war they were allowed to continue at the Works by the kind permission of Government; but half of them were removed to Ahmednagar in October 1914, and the rest in December. Their places were taken by men recruited in England.

The Kumardhubi Fireclay and Silica Works of Messrs. Bird & Co., and the Potteries, Raneegunge, of Messrs. Burn & Co., have now commenced to supply the Company with silica bricks

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which promise to compete with the foreign bricks hitherto imported.

As regards Magnesite bricks, this Company is now quite independent of the foreign supply, as magnesite bricks made from the Company's Mysore Magnesite Ore by the Kumardhubi Fire-clay and Silica Works are as good as the Austrian Magnesite bricks formerly imported.

ROLLING MILLS.

The Company have a 40" Blooming Mill, a 28" Rolling Mill, a 16" Mill and two 10" Bar Mills (one of the 10" Bar Mills came into operation only in September 1915).

In the Blooming Mill the hot ingot from the Soaking Pits is reduced to the required size of blooms and billets for the 28" mill and bar mills respectively.

28" FINISHING MILLS.

The 28" finishing mill can turn out rails from 100 lbs. to 30 lbs., beams from 15×6 inches down to 5×3 inches, angles from 6×6 inches to 3×3 inches, channels from 12×4 inches to 6×3 inches.

Blooms from the Blooming Mill are reheated in reheating furnaces before they are rolled. Sections of rails or structural material after being rolled to required dimensions are cut by circular saws into required lengths and are mechanically conveyed by rollers to cooling bed which is of the moving type. From the cooling beds, all bars including rails are passed through a roller straightening machine in the Finishing Department which is equipped with three straightening machines and the usual drilling and planing machines, and an overhead electric crane which runs over the full length of the Finishing Department.

BAR MILLS.

At first there was one 16" mill and one 10" mill. In September 1915, one more 10" mill was added so that now there are two 10"

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mills. The 16" mill makes light rails weighing 30 lbs. to 14 lbs. to the yard, angles of all sizes from 3" to 1½" and channels from 4" down to 1½", 4" × 1½" beams, and fishplates for rails. The 10" mills are devoted to the production of lighter sizes of flats, squares, rounds, etc.

A roll turner's shop is attached to the mills and most of the rolls required by the mills are turned here. But for the foresight of the Company in having a roll-turner's shop manned by trained European operatives, the Company would have been considerably handicapped by its inability to obtain rolls from abroad during the war time.

There is a well equipped Chemical and Physical Laboratory attached to the Works for testing raw material and finished products. There is also a Government Laboratory in charge of the Metallurgical Inspector of the Railway Board who supervises the Company's manufacture on behalf of the State Railways. The position of the Metallurgical Inspector was filled by Dr. Mac William (late of the Sheffield University) till last year, when his services were borrowed from Government by the Tata Iron and Steel Company for the improvement of the Open Hearth practice and other research work.

There are also well fitted machine shops together with shops for pattern makers and carpenters, blacksmiths, repairs to locomotives, electrical repairs and for structural work.

POWER HOUSE.

The Power House contains three Turbo-Blowers for supplying air to the furnaces in the blast house. A volume of 32,000 cubic feet of air, under pressure of 15.5 lbs. to the square inch, is blown into those receptacles in the course of a minute, and the power absorbed is for a full load 2,250 H. P., for a three-quarter load 1,920 H. P., and for a half load 1,700 H. P.

The plant consists of three 1,000 Kilowatt, 3,000 volt Turbo-Alternators running at a speed of 3,000 revolutions per minute,

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and three Transformers of 1,250 K. V. A., 3,000 to 440 volts and two Motor Generator sets of 500 Kilowatts each.

These machines supply power for lights and fans throughout the entire works, including the bungalows in the Northern Town, for driving all machinery in the Machine Shop and Foundries, and for cranes and pumps.

The supply of water not only for the Works but also for the large number of persons living in the adjoining township which has come into existence since the commencement of the Works was at the outset a question of supreme importance to the Directors, but ample provision has been made for all purposes by pumping from the Subarnarekha River—a distance of 2 miles. The water is pumped electrically through pipes 36" in diameter from the river to a very large storage tank at the Works.

APPENDIX C.

EXTENSIONS AND SUBSIDIARIES.

Extensions of the Company's Works on a large scale are under construction, whereby the Works will be equipped to produce about 350 to 400 thousand tons of Finished Steel per annum. The following additions will be made to the present plant :—

- 200 Wilputte Coke Ovens.
- 3 Blast Furnaces including the "Batelle."
- 2 Duplex Furnaces and an Open Hearth.
- A Blooming Mill.
- A Continuous Sheet Bar & Billet Mill.
- A Rail Mill.
- A Sheet Mill.
- A Continuous Merchant Mill.
- A Plate Mill.
- A Sleeper Press.
- A Pipe Foundry.
- An Electric Furnace.

Thus there will be an increase in the output of Coke Ovens, Blast Furnaces, Open Hearth Furnaces and the Finished Steel will be more diversified. Over and above the rail and structural sections, Works for the manufacture of Bolts and Nuts and Rivets Plate, Sheet, Galvanized Sheets, Wire and Wire Shapes, Steel Sleepers, Cast Iron Pipes, Steel Tubes, manufacture of Wheel Axles, Tyres, Springs and other accessories of Wagons and Railway Wagons themselves will be established. Some of these products will not be made directly by the Steel Company, but by subsidiary industries established in the vicinity of its Works.

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Arrangements have almost been completed for the establishment of Subsidiary Industries to undertake the manufacture of:—

1. Enamelled Ware,
2. Tin Plate,
3. Sulphuric Acid and Zinc,
4. Jute Mill Machinery,
5. Steel Tubes.

In addition to the above, the Company is considering proposals for the establishment of the following industries.

1. General Engineering,
2. Electrical Machinery,
3. Chemicals,
4. Agricultural Implements,
5. Galvanized Buckets, &c.,
6. Wire Shapes and Steel Shelving,
7. Structural Work.

In order to enable the Company to locate these Subsidiary industries, and for other purposes of the Company, Government have been pleased to acquire for the Company $11\frac{1}{4}$ square miles of land at Jamshedpur; this with the area already acquired and a further area which is likely to be granted by Government, will bring the total area of land owned by the Company to about 25 square miles.

The Extensions of the Works of the Company will also include all the works necessary for the welfare of labour such as schools, Hospitals, Agricultural Farms, Dairy Farms, Co-operative Societies, Libraries, Gymkhanas, Technical Schools and all other Institutions solely devoted to the benefit of labour.

The proposed Extensions will ultimately increase the population of Jamshedpur to about 200,000 souls, which will necessitate the Extensions of the Town and amenities such as water, drainage, habitation for the work people, staff, &c.

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The main principles underlying the Extensions are to effect economy of operation and to promote efficiency, and to put the Company in a position successfully to meet competition by the manufacture of a larger variety of products, by low costs attending on large scale production, and by securing fixed custom for a portion of its products through the establishment of Subsidiary Industries at Jamshedpur.

APPENDIX D.

MUNICIPAL AND WELFARE WORK.

Before the establishment of the Tata Iron and Steel Company, Ltd., the present site of the Works and the town was covered with jungle with a few aborigines living in the villages near by. When the Company started its manufacturing work, it had therefore to assume municipal functions for the protection of the health and for the welfare of the employees. The present population of Jamshedpur numbers about 50,000 souls, out of whom 18,000 are directly or indirectly employed by the Company. The following is a short account of the welfare and municipal work done by this Company :—

Jamshedpur Town.—Up to the middle of 1918 the Tata Iron and Steel Company had spent about 25 lacs of rupees for Town Buildings including Hospital and Roads. The cost of Town and Road lighting came to about Rs. 1,32,000. The Company is now considering the question of building more houses for the accommodation of the employees. For the convenience of the public, the Company has built Rice and Vegetable sheds in the vicinity of the Bazaar, at a total expenditure of about Rs. 36,000.

Sanitation.—On Town Sanitary Works which includes the septic tanks for the Northern and Southern towns and drains, the Company has up to the middle of 1918 spent about Rs. 3,31,000 and under the Greater Extensions scheme the Company will incur an additional expenditure on this account.

For the water supply for the works and the town a capital expenditure of about Rs. 10,53,000 has been incurred, and the Company proposes to spend a further sum of about Rs. 31,50,000 for the improvement of the present water system to cope with the larger population that would grow during the next ten years.

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Public Latrines.—The Company is maintaining 23 Latrines in Jamshedpur Town for the convenience of the general public.

Abattoir.—As there is no slaughter house at Jamshedpur at present, the Company proposes to build an abattoir on modern lines.

The Company has recently employed a qualified Public Health Officer to look after the sanitation of the Town, water supply, drains, roads, septic tanks, lavatories, fish and meat, vegetables and fruits sold at the Jamshedpur Bazaar, &c.

The Company has also engaged the service of Dr. Gilbert Fowler, the drainage expert at the Indian Institute of Science, Bangalore, at great expense to study the problems of applying the Activated Sludge process to the disposal of sewage at Jamshedpur and thus convert the sewage into a valuable fertiliser. At present experiments are being carried out at Jamshedpur by Dr. Gilbert Fowler's assistants which point to the successful application of this process to Jamshedpur sewage. The Tata Iron and Steel Company is the first corporation of its kind in India to experiment at their own expense in the Activated Sludge Process which, if successful, will be of benefit not only to this Company but also to the whole country.

Hospital.—There is no Government Hospital or Government Aided Hospital at Jamshedpur or in the neighbourhood. The Tata Iron and Steel Company has a hospital where the Company's employees and outsiders are treated free of charge. The number of patients treated in our Hospital from the year 1911 to 30th April, 1918, comes to about 8,27,462, out of whom 40 per cent. were outsiders from Jamshedpur and neighbouring villages, who were supplied with medical aid entirely free of charge. Thus this Hospital is not only taken advantage of by the employees of the Company, but also by the inhabitants of some 12 to 15 villages situated within the radius of 10 to 15 miles of the town of Jamshedpur.

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In connection with the present Hospital, there is a segregation shed situated at a considerable distance from the residential quarters where patients suffering from infectious diseases are kept.

As the accommodation at the existing Hospital is not sufficient to take care of the increasing number of patients, arrangements have been made for building a new well equipped hospital on modern lines at an expenditure of six lacs of rupees.

Dalma Hills.—A scheme is under discussion for the establishment of a Hill station at Dalma in co-operation with the Government of Bihar and Orissa for the benefit of the Company's employees.

Education.—The Company have at present four schools at Jamshedpur :—

- (a) The Mrs. Perin Memorial School.
- (b) A Night School.
- (c) A Mechanic School.
- (d) A Girls' School.

The Mrs. Perin Memorial School has been up to now a middle English School. But it is now proposed to raise it to the High School Standard. The number of boys at present on the roll is about 204, daily attendance being about 150.

In the Night School, Office *Chokras* and other employees of the Company who are desirous of learning English and Mathematics, get free tuition every evening for two hours. The number of students attending this Night School is about 70 at present.

A School for the children of better classes of Indian and European employees is being considered; while six Primary Schools teaching Hindi and Bengali are about to be started in different parts of the Town.

In the Mechanic School, promising young boys of the Mistri class employed at the Works, are taught elementary mathematics and Drawing with a view to make them more efficient in their work. About 25 students attend this School at present.

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The total Capital Expenditure incurred on school account by the Company up to the middle of 1918 came to about Rs. 30,400. Since then, the Directors have sanctioned the building of a Girls' school at Jamshedpur. This building is now complete ; and is capable of accommodating 200 to 300 pupils.

It has been proposed by the Government of Bihar and Orissa to start a Technological Institute at Jamshedpur with the help of this Company, which would specialise in Metallurgy and Electrical and Mechanical Engineering ; and this proposal is at present under discussion between the Company and the Local Government. The building and equipment for this Institute are expected to cost about Rupees Two Lacs about half of which will be shared by this Company. A part of the running expenses, not exceeding Rs. 35,000 per year, will also be borne by this Company.

Clubs and Public Amusement.—The Company has built a fine Institute for the employees containing a Concert Hall, Billiard Hall, and Reading Rooms, Tennis Court, Cricket and foot ball ground and a Bowling Alley. Any employee of the Company can become a member of this Institute without distinction of pay, colour or creed. For the convenience of the employees living in "G" Town, the Company has recently built a Branch Institute in that quarter. These two Institutes have cost the Company Rs. 98,300. For the amusement of the public a band has been organised from amongst the Company's employees and the cost incurred up to now of equipping it with necessary musical instruments comes to about Rs. 2,000.

Public Safety Department.—The Company has a public and town safety department employing about 100 Chowkidars and Sepoys under a Police Officer lent by the Bihar and Orissa Government. This Department works in co-operation with the Local Government Police for the safety of the Public and detection of crime. From 1st of July 1911 to 30th April, 1918, the operation expenses incurred in connection with this Department amount to Rs. 1,29,000.

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Public Conveyance.—As there were no suitable means of conveyance of public passenger traffic from the station to the Jamshedpur Town, the Company bought two Motor 'buses in 1916, at a cost of Rs. 21,400. These 'buses meet every train at Tata-nagar and are available for the public. This facility is provided to the public at a loss. A picnic or holiday 'bus is also about to be provided for the recreation of the employees of the Company.

Jamshedpur Hotel.—As there is no Government Dak Bungalow at Jamshedpur or near about, the Company had to start a Hotel last year to provide accommodation for the Public, though in running it the Company suffer a considerable loss.

Consumption of Country Liquor.—In order to minimise the effect of drunkenness among the workmen, and in order to help the Government in their policy of "Minimum consumption and Maximum Revenue" this Company, last year, arranged with the Government to have shops of their own in Jamshedpur and neighbouring villages on the contract supply system.

Supply of Milk.—As it was found difficult to procure good-milk and bread for the Northern Town, the Company gives facilities to a private concern for a dairy and bakery.

When the low lying land at the junction of the Khorkai and Subernareka River is acquired, they propose to devote about 4,000 acres of this land to large-scale farming on modern lines. Mr. Milne, the Government Agricultural Officer of this Province, has reported favourably on this scheme. The object is to start a model Farm on a large scale, worked by up-to-date methods. As the Works produce ammonium sulphate and basic slag as by-products, these fertilisers will be advantageously used in this farm to which a plentiful supply of water can be secured from the water which now runs to waste after serving the Works. This will be a model Farm of its kind in the Province. Not only will it supply the necessary Dairy Farm produce to the growing population of Jamshedpur and the neighbouring villages,

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but it will be an example to the neighbouring farmers of modern up-to-date methods of farming. This scheme is expected to cost the Company nearly Rs. 2 laacs.

Town Hall and Bank.—To add to the amenities of the Town, it has been proposed to build a Town Hall at Jamshedpur.

For the convenience of the Company, the subsidiary industries and the general public, it has been arranged to have a branch of the Tata Industrial Bank established at Jamshedpur.

Insurance against Accidents.—To give facilities to the employees for insurance against accidents, etc., the Company has a scheme whereby any employee of the Company can insure himself against accidents met on the premises of the Works at half the cost of what he would have to pay as premium to any Accident Insurance Company.

Social Welfare Work on Scientific Lines.—In order to carry on the Social Welfare Work on modern scientific lines, a Committee of distinguished Sociologists consisting of Professor Urwick of the London University, Professor Hobhouse and Mr. and Mrs. Sydney Webb has been formed in London to help in drawing out a scheme for scientific welfare work to be done at Jamshedpur. This Committee recommended that Dr. Mann, Principal of Poona Agricultural College, should be asked to make a preliminary report about Social Welfare Work at Jamshedpur. Dr. Mann accordingly visited Jamshedpur and has now submitted his report which is being considered by the Directors.

A Rest House for Coke Ovens Coolie Women.—In 1915 the Company provided a Rest House for the women working at the Coke Ovens where they might sleep. "Creche" is also provided in the Rest House for their children, who are taken care of by an Indian Nurse.

Grain Distribution and Co-operative Societies.—Owing to the recent rise in the prices of foodstuffs the Company has arranged for the wholesale purchase of grain and other necessities, and their

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distribution to its employees at cost price. The Servants of India Society have lent the services of Mr. A. V. Thakkar and two other members for the purpose. A number of Co-operative Societies are also being organised.

Hours of Work.—Realising the harmful effects of long hours on workmen, the Company has introduced in all its operative departments, coke ovens, blast furnaces, steel works, rolling mills, etc., a shift of eight hours instead of twelve, which is the usual practice in Indian factories.

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WAR SERVICES.

The Tata Iron and Steel Company has rendered valuable services to the Government during the war by their ready supply of rails and other materials required for India and for the Campaigns in Mesopotamia, Egypt, Salonica and East Africa. These services have been publicly acknowledged by the Viceroy. From the beginning of the War in August 1914, the Company has supplied to the Government about 291,562 tons of steel material in the shape of rails, shell steel and structural material at an average base price of less than Rs. 150 per ton. If this pioneer Steel Works had not existed, this supply would have had to be obtained from the United States as the English Works were busy with urgent Munition work of their own. The average price at which the Government could have secured their requirements from the States would have been at least Rs. 200 per ton more than what they have paid to this Company, considering the high level of prices obtaining in the States and the exorbitant freight and insurance rates. In other words, by supplying, 291,562 tons of steel materials to the Government at an average base price of less than Rs. 150 per ton, this Company has made a saving of about six crores of Rupees to the Government. We give below the figures showing the total percentage of the Company's steel output supplied to the Government since the beginning of 1st April 1917 :—

	Per cent.
April 1917	77·88
May	76
June	69
July	71·19
August	77·36
September	77·84
October	79·97

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	Per cent.
November	77·59
December	83·31
January 1918	74·94
February	81·85
March	79
April	89·7
May	89·2
June	92·6
July	91·19
August	92·04
September	97·72
October	96·42
November	93·75
December	86·10

To give an idea of the sacrifice made by the Steel Company it may be mentioned that for the Bar Mill material sold to Government, the Company could have easily realised in the market four to five times the price paid to it by Government, as the price of steel bars in the Calcutta Market went up as high as Rs. 1,000 per ton.

In addition to these supplies, about four thousand tons of Pig Iron were supplied against orders from Government for Military requirements and for the requirements of public bodies at very low rates compared with the price of Pig Iron in England. Thus, for instance, when the f. o. b. price of Cleveland Pig in England was about 122 shillings per ton (Rs. 91-8-0) supplies were made by the Tata Steel Company to the Government Gun and Shell Factory at Cossipore at Rs. 80 per ton only, which would mean that the Tata price was cheaper by over Rs. 11 per ton even without taking into account the sea freight, insurance and handling charges, etc.,

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which Government would have had to incur to get their supplies from England.

In the beginning of the War the Company had two Blast Furnaces for Pig Iron and four Open Hearth Steel Furnaces, and as the output of the Blast Furnaces was very much more than what the Steel Furnaces could convert into steel, a very large tonnage of Pig Iron was available for sale in the market at very profitable rates. But during the War, the Company, realising the urgent need of Government for additional steel, voluntarily added two more Open Hearth Furnaces to its Steel Plant and thus converted practically the whole of its output of iron into steel, though to do that meant heavy sacrifice because the rate of profit on Pig Iron was ever so much higher than that of steel at its controlled price.

In 1916, Ferro-Manganese, which is one of the essential alloys required in steel making, was made at Jamshedpur for the first time in India and a few thousand tons were sold in the American Market at very profitable prices. For Ferro-Manganese fancy prices were obtainable during the years 1917 and 1918 in America and Japan. The Steel Company, with a loyal determination to help the Government, agreed not to manufacture this much needed alloy and utilized the Blast Furnaces, for the manufacture of Pig Iron which again, as stated above, instead of being placed on the market yielding better returns, was practically converted into steel to help Government during the period of the War. If one of the Blast Furnaces of the Steel Company had been placed on the manufacture of Ferro-Manganese for nine months during the year 1918 and the whole of this Ferro Manganese exported to America, the Steel Company would have made a net profit of not less than about a crore and ten lakhs of Rupees from the output of this one Furnace alone. But it had to forego this advantage in order that both the Blast Furnaces may be put on Pig Iron for conversion into steel so urgently required by Government.

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Tata Steel was furnished at controlled prices not only for the Military requirements in Mesopotamia, Egypt, East Africa, Salonica and other theatres of War, but was supplied also at the same rate to the Indian Railways and Military and Civil Departments of the Government in India. Even the Port Trusts of Bombay and Karachi, which have their own separate organisations, were allowed the benefit of controlled prices for the supplies they received, and were able to obtain practically all their requirements of steel at the low controlled price fixed by Government. The Steel Company, during the period of the War, has thus done services not only directly for the conduct of the War, but have indirectly helped all the Railways in India and all public bodies in India to obtain considerable quantities of steel at very low prices.

It would not be out of place here to refer to the Steel Company's contribution to the War Loans, and figures showing the amounts contributed by the Steel Company and its Employees are given below :—

	Rs.
Contribution by the Steel Company to the <i>First</i>	
Indian War Loan (Bombay Office)	40,00,000
Contribution by the Steel Company to the <i>First</i>	
Indian War Loan (Jamshedpur Office) ..	2,75,000
Contribution by the Steel Company to the <i>Second</i>	
Indian War Loan (Bombay Office)	10,00,000
Contribution by the Steel Company to the <i>Second</i>	
Indian War Loan (Jamshedpur Office) ..	5,00,000

Total contributed by the Steel Company ..	57,75,000

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	Rs.
Contribution by the Employés of the Steel Company to the <i>First</i> Indian War Loan (Jamshedpur Office)	2,75,000
Contribution by the Employés of the Steel Company to the <i>First</i> Indian War Loan (Bombay Office)	10,000
Contribution by the Employés of the Steel Company to the <i>Second</i> Indian War Loan (Jamshedpur Office)	58,500
Contribution by the Employés of the Steel Company to the <i>Second</i> Indian War Loan (Bombay Office)	5,400

Total contributed by the Employés of the Steel Company	3,48,900

APPENDIX F.

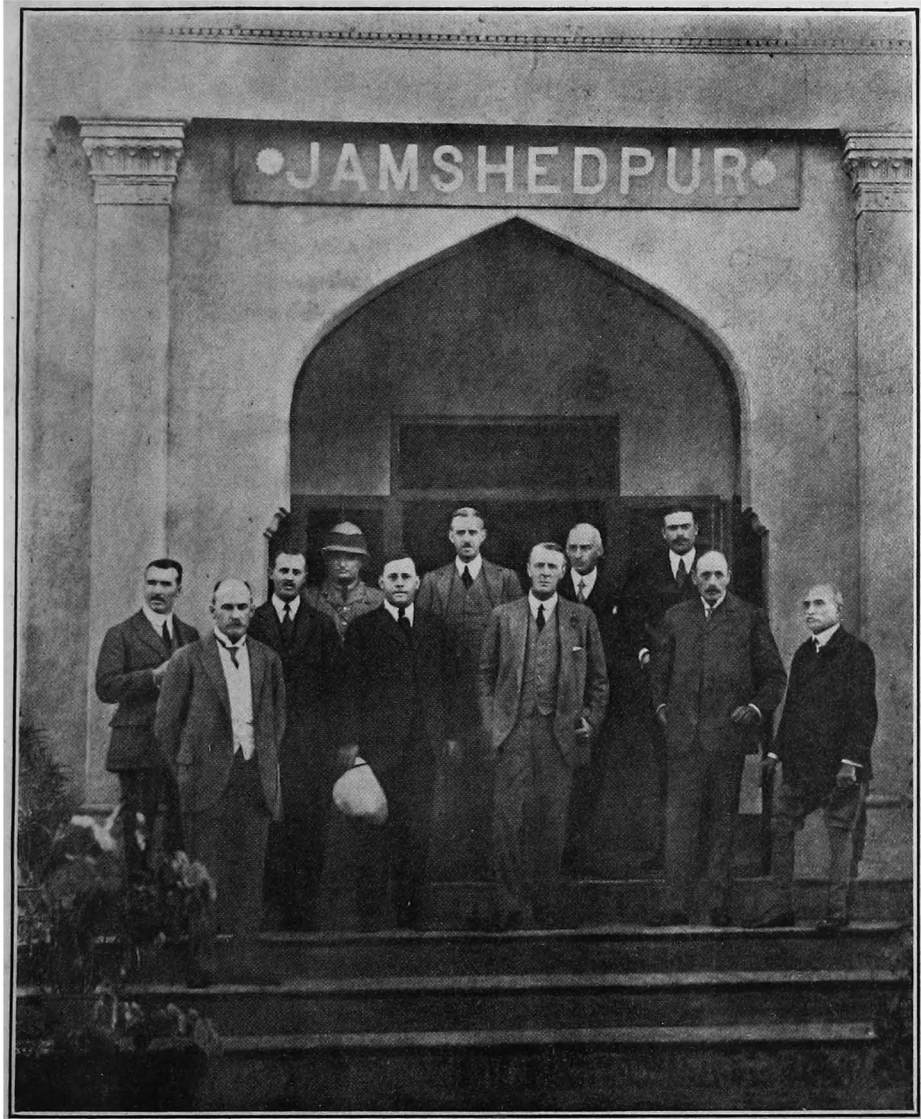
THE VICEROY'S VISIT.

H. E. Lord Chelmsford visited the Tata Iron and Steel Works at Sakchi on January 2nd, 1919. The following account of the visit appeared in *The Times of India* of the following day :—

His Excellency the Viceroy accompanied by the Hon. Sir George Barnes, Colonel Verney, Military Secretary, Colonel Austin Smith and Captain Ives, visited the Tata Iron and Steel Company's Works at Sakchi to-day. On his arrival by special train early in the morning at Kalimati Junction His Excellency was met by Sir Thomas Holland and later at Sakchi station received by Sir Dorab Tata, chairman of the company, Sir Sassoon David, director, Mr. Tutwiler, general manager, the Commissioner of the division, the Deputy Commissioner of Singhbhoom, the Deputy Inspector-General of Police, Dr. McWilliam, Government Metallurgical Inspector and a number of officials of the company. A guard of honour furnished by A company of the Chota Nagpur Volunteers was lined up at the station and was inspected by His Excellency.

The Viceregal party left by motors for the directors' bungalow where they were to stay for the day. The route was gaily decorated with flags and bunting and spanned by a number of triumphal arches with various and suitable inscriptions.

After breakfast at the bungalow, His Excellency motored to the works, over which he was taken in an observation car, accompanied by Sir Dorab Tata, Sir Thomas Holland and the general manager. His Excellency first visited the sulphuric acid plant, the bye-product plant, the bye-product coke ovens and the coppee coke ovens, after which the blast furnaces were inspected, where a cast of pig iron was seen being made. The power-house and the gas producer building were next visited; after which the



THE VISIT OF H. E. THE VICEROY, JANUARY 2ND, 1919.

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party was taken to the open hearth furnaces where His Excellency witnessed the tapping of molten steel. His Excellency inspected the blooming, the bar, the 28 inch and the finishing mills. A number of rails were then seen tested by the drop and the tension tests.

At lunch a number of officials of the Local Government were invited.

The works and offices were inspected after lunch. A visit was subsequently paid to the hospital, the boys' schools, the mechanics' school, the girls' school and the institute, and the party motored round the town.

On returning to the Directors' bungalow His Excellency from the steps of the bungalow and before a large gathering of people announced Jamshedpur as the new name of Sakchi town in memory of the distinguished founder of the Tata Company, the late Mr. Jamshedji N. Tata.*

In announcing the change of name His Excellency said :—
“Gentlemen,

I have come down here to-day in the first place to see this fine example of Indian industry. As you know, it is the policy of my Government to encourage all industries in India so far as is possible to do so. And I wanted to be able to see this fine example of Indian industry which has been set up at Sakchi. In the second place I wanted to come here to express my appreciation of the great work which has been done by the Tata Company during the past four years of this War. I can hardly imagine what we should have done during these four years if the Tata Company had not been able to give us steel rails, which have been provided for us not only for Mesopotamia, but for Egypt, Palestine and East Africa. And I have come to express my thanks to the Directorate of this Company for all that they have done and to Mr. Tutwiler,

* The Government of Behar and Orissa have since changed the name of Kalimati to Tatanagar.

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the General Manager of this Company, for the enthusiastic work which he brought to bear in this behalf during the past four years. (*Applause.*) It is hard to imagine that 10 years ago this place was scrub and jungle; and here we have now this place set up with all its foundries and its workshops and its population of forty to fifty thousand people. This great enterprise has been due to the prescience, imagination and genius of the late Mr. Jamshedji Tata. (*Applause.*) We may well say that he has his lasting memorial in the works that we see here all round. But you will be pleased to learn when I tell you to-day that on account of the filial reverence of Sir Dorab Tata this place will see a change in its name, and will no longer be known as Sakchi, but will be identified with the name of its founder, bearing down through the ages the name of the late Mr. Jamshedji Tata. Hereafter, therefore, this place will be known by the name of JAMSHEDPUR. (*Applause.*) It is my privilege here to-day to have been able, on this the occasion of the first visit of a Viceroy to this place, to pay my tribute to the memory of that great man." (*Loud Applause.*)

Later in the evening His Excellency and party returned to Calcutta by Special Train.