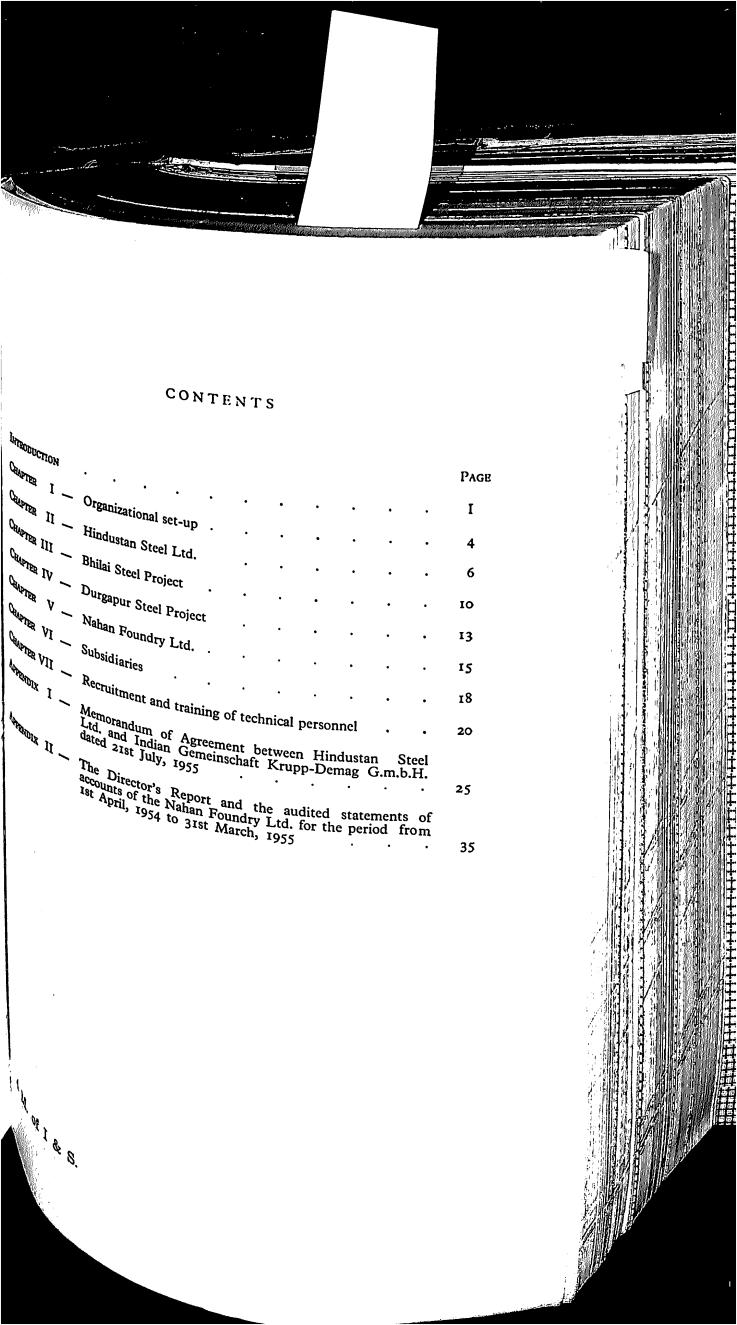
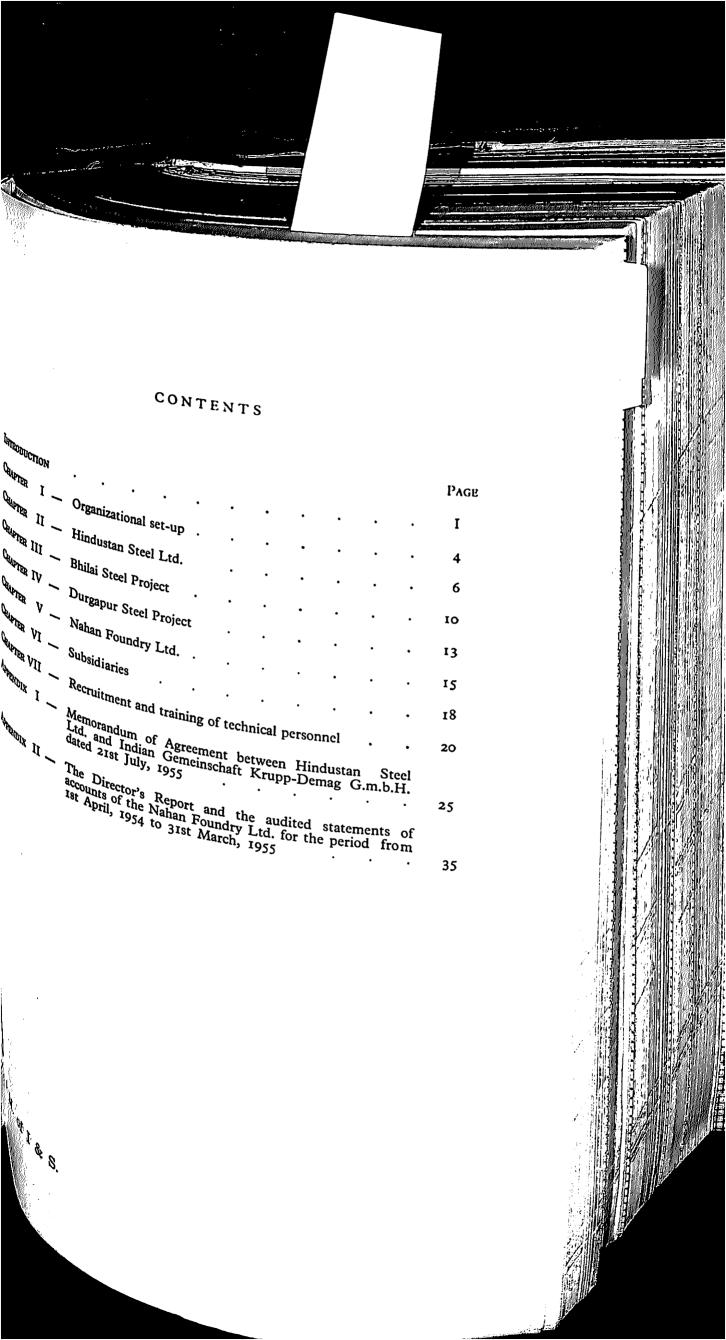
REPORT

1955—1956



NINISTRY OF IRON & STEEL





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INTRODUCTION

The Ministry of Iron & Steel was created by a Presidential der dated to the subject allott-Order dated the 28th of May 1955 and the following subject allotted to it.

- (a) Government industrial undertakings for the production of iron and steel.
- (b) Government-owned foundries.

2 Steel is basic to industrialisation. But the production of within the de-Steel is basic to industrialisation. But the production within the country has always been much less than the devident during the last mand. Within the country has always been much less than the year of the First became markedly evident during the last part. I the First became markedly evident in all fields, year of the First Plan period. Rapid development in all fields, particularly in industry, which is envisaged in the Second Five key plan, cannot be seen to be basis of steel. The Year Plan period. Rapid development in the Second seed of the name Minister, Shri m policy was struck by the Commerce & Industry in he announced early in Minister, cannot be thought of except on the light the new policy was struck by the Commerce & Industry Shri T. T. Krishnamachari, when he announced early in the target of target of target of the target of target instant the new policy was struck by the comminger, Shri T. T. Krishnamachari, when he announced early there is the target for the next Plan must be 6 million tons of the comminger of the next Plan must be 6 million tons of the next Plan must be that that the target for the next Plan must be 6 million tons whether any doubt the immediate reaction to that was, today if there is any doubt left, it is only whether this target is enough or set; events more than one imagines. This Whether is any doubt left, it is only whether this target is enough proposed to not outdate it sooner than one imagines. This proposed to be attained as follows:

								Existing	Target for 1960
Tata Iron & Steel V Mysore Iron & Steel By etahl	-						-	(in million tons)	(in million tons)
Ata Iron & Steel Vindian Plant The Steel Vindian Vindian Plant The Steel Vindian Vindian Plant The Steel Vindian	wisting works	orks.							
Rosablish a Ste	el pr	•	•	•	•			0.9	2.0
Bhillela ment of	orks	•	•	•	•	•		0.2	0.9
pha blant of t	lew work.	•	•	•	•		•	0.03	0.1
Rapur Pla		in the	Public	sector	•				
the day	٠.	•	•		•		_		1.0
With do	٠.		•						1.0
the theion	Tor	AL	•	•	•	•	•	••	1.0
Plant Plant Plant With decision to the establi	coner		•	•	•			1.43	6.0

termination of new works in the public sector under the Government to achieve this target. ination of the works in the public sector under-

- 3. The Ministry of Iron & Steel which came into being on the 15th of June 1955 took over from the Ministry of Production the responsibility for the planning and execution of the two Steel Works at Rourkela and Bhilai and also the administration of the Nahan Foundry Limited, Nahan (Himachal Pradesh). The planning and execution of the third steel plant which was to be located either in West Bengal or in Bihar was taken over from the Ministry of Commerce & Industry
- 4. Considerable progress has been made with the planning and astruction of the Starl Translation has been The site has been construction of the Steel Works at Rourkela. Tenders have got ready and the township is under construction. been received for two main sections of the plant, viz., for the coke ovens and the blast formula sections of the plant, viz., for the ovens and the blast furnaces. Negotiations are going on for the best method of speed. sections of the plant. Work has begun in Bhilai for the preparation of the site, of building of the township and the preparation of the site, of Business of the site, of the preparation of the site, best method of speedy construction of the other building of the township and other preliminary works. A team the Russian experts led by the D Russian experts led by the Deputy Minister for Iron & Steel in the USSR, Mr. Khlebnicov USSR, Mr. Khlebnicov, presented the Final Project Report to Government of India. This Report has been examined by the Government of India with the assistance of India experts and the Government of India with the assistance of India. Indian experts and the Consulting Engineers of the Government and a continuous contains and a contains and a continuous contains and a continuous contains and a continuous contains and a continuous contains and a contains and a continuous contains and a continuous contains and a continuous contains and a contai of India. As a result, certain modifications have been agreed and the erection of the Government and acontract has been considered to the erection of the Government and the erection of the Government and acontract has been considered to the erection of the Government and the erection of the Government and the erection of the Government and the Governmen and a contract has been concluded for the supply of equipment as modified of the Steel Ways the erection of the Steel Works according to the Project Report as modified. Certain sections of the section of the sectio modified. Certain sections of the plant are expected to go into operation in 1958 and the Steel W ration in 1958 and the Steel Works as a whole by December the Color of United V.
- 5. The United Kingdom Steel Mission which came out under the lombo Plan to survey and results which came out under the vernment of a The Colombo Plan to survey and report on the establishment of the Mission recommendation recommendation of the Mission recommendat Mission recommended Durgapur in West Bengal as the Site King dom Steel Mission Plant. The location of this plant. The recommendations of the United King India. To add were good to the submitted its report in August 1 for 1 location of this plant. The recommendations of the United King India. To add were good to the United King India. dom Steel Mission were generally accepted by the Government connected with a government of the Governm To advise the Government of India on technical months of the the Government of India on technical the nof the the Government of India on technical the nof and the the graph of the graph of the the graph of the connected with all steel questions and in particular with firm of Consulting Francisco Steel Plant struction of the third Steel Plant at Durgapur, a well known the Consulting Engineers—The Let Engineers—The International Construction Ltd., London Was appointed as the Consulting Engineers ex the possibility of India At III as the Consulting Engineers ex the possibility of India At III as the Consulting Engineers ex the possibility of India At III as the Consulting Engineers ex the possibility of India At III as the Consulting Engineers ex Government of India. At the same time, with a view delegand discussion a British Company of the speedy company the possibility of India. At the same time, with a view delegand discussions were hard start of the speedy construction of the plant, a view delegand factors. from a British Consortium of steel manufacturers was be a Steel Works. discussions were held to find out whether there could be steel works by one ago. Works his an amend to the construction Works by one agency. The British Consortium—The quotations works Construction Co. Ltd.—submitted its preliminary

3. The Ministry of Iron & Steel which came into being on the the rest that of June 1955 took are the rest. 15th of June 1955 took over from the Ministry of Production the responsibility for the plant. ponsibility for the planning and execution of the two Steel Works at Rourkela and Bhili at Rourkela and Bhilai and also the administration the Nahan Foundry Limited and also the administration the Nahan Foundry Limited, Nahan (Himachal Pradesh). The planning and execution of the discontinuous to be located ning and execution of the third steel plant which was to be located either in West Bengal on in Bu either in West Bengal or in Bihar was taken over from the Ministry of Commerce & Industry

4. Considerable progress has been made with the planning been struction of the Steel Way. construction of the Steel Works at Rourkela. The site has have got ready and the township. got ready and the township is under construction. For the coke been received for two main been received for two main sections of the plant, viz., for the ovens and the blast furness. ovens and the blast furnaces. Negotiations are going on the best method of speedy best method of speedy construction of the other sections of the plant. Work has begun in Dk:1--plant. Work has begun in Bhilai for the preparation of the building of the township and the preparation of the steam the building of the township and the steam the building of the township and the steam the building of the township and the steam the steam the building of the township and the steam the ste building of the township and other preliminary works. Steel in the Russian experts led by the Daniel Britanian works. Russian experts led by the Deputy Minister for Iron & Steel in the USSR, Mr. Khlebnicov, presented USSR, Mr. Khlebnicov, presented the Final Project Report Government of India and the Report This Report Government of India on the 9th December 1955.

This Report of 1955.

The Assistance of 1955.

Indian been examined by the Government of India with the Government of India experts and the Consulting of India. examined by the Government of India with the assistance of Indian experts and the Consulting Engineers of the agreed upon of India. As a result, certain made a contract of the agreed and a contract of the agreed agreed agreed and a contract of the agreed of India. As a result, certain modifications have been agreed and a contract has been concluded to the erection. and a contract has been concluded for the supply of equipment as the erection of the Steel Works and a contract has been concluded for the supply of equipment as the erection of the Steel Works and a contract has been concluded for the supply project Report as the erection of the Steel Works are the supply project Report as the erection of the Steel Works are the supply project Report as the erection of the Steel Works are the supply project Report as the erection of the Steel Works are the erection of th the erection of the Steel Works according to the project not of equipment as modified. Certain sections of the supply of equipment as modified. Certain sections of the supply of equipment as project Report operation in 1959. modified. Certain sections of the plant are expected to go make ration in 1958 and the Steel Wards. The United Kings

Steel Works according to the Project into or 1959.

The United Kings

Steel Works as a whole by December the plant are expected to go into or 1959.

The United Kings

Colors

The United Kings

5. The United Kingdom Steel Mission which came out under the lombo Plan to survey and reserve the lower plant of a light plant of a l o. The United Kingdom Steel Mission which came out of a The Colombo Plan to survey and report on the establishment 1955.

Government steel plant submitted in the Mission recommendation of the Colombo Plan to survey and report on the establishment 1955. Mission recommended Durgapur in West Bengal as the United dom Steel Mission. The recommended Durgapur in West Bengal as the United dom Steel Mission. location of this plant. The recommendations of the Governmenters and India. To advise dom Steel Mission were generally accepted by the Government connected with all India. To advise the Government of India on technical the struction of the the Government of India on technical the struction of the the Government of India on the struction of the the Government of India on the struction of the the Government of India on the struction of the the Government of India on the struction of the the Government of India on the struction of the the Government of India on the struction of the struction connected with all steel questions and in particular with firm y struction of the third Steel Plant of Engine struction of the third Steel Plant at Durgapur, a well known for the Ltd., London—Was Government of India on technical the of struction of the third Steel Plant at Durgapur, a well known to the Ltd., London—Was The Internation to the Government of India on technical the configuration of the configuration to the latest the configuration to the latest the configuration to the configurat Government of India. At the same time, with a view delegand from a British Const. Ltd., London—was appointed as the Consulting Engineers exp the possibility. the possibility of the speedy construction of the plant, a discussions were held from a British Consortium of steel manufacturers was be a Steel factory arrangement. discussions were held to find out whether there could plete Steel Works by one agence. works by one agency. The British Consortium—The Indianary quotations works Construction Co. Ltd.—submitted its preliminary

amined have the middle of January, 1956. These were examined by the Government of India with the assistance of the Consulting Engineers and further discussed with a delegation from the Reiter Processed on the the British Consortium. An agreement has been reached on the broad structure. broad structure of the contract to be entered into with the Con-Sortium. The detailed specifications and the final quotations will be submitted. be submitted by the Consortium by the middle of May. If the final Contract is Contract is concluded by the end of June 1956, it is expected that certain sections of the plant will go into operation in the middle of and the entire Steel Works by December, 1960.

CHAPTER I

ORGANISATIONAL SET-UP

The Ministry which was formed on the 15th of June 1955, control ts, at present of one Section 1955, control two sists, at present, of one Secretary, two Deputy Secretaries and Under Secretaries The Secretar Under Secretaries. The office itself is divided into ten sections each of which has one Section of

The Ministry is assisted in civil engineering matters by a Civil gineering Adviser who have Engineering Adviser who has a number of junor officers under him. On all general at a number of junor officers and engineering the second seco under him. On all general steel questions, plant lay-out and engineering, it is assisted by neering, it is assisted by a reputed firm of Consulting number viz., the International Consultational Consultat viz., the International Construction Co., London. A certain number of technical representatives of the property of the contraction of the contract of technical representatives of the consultant firm will be stationed in Delhi, to be available to the Tr. in Delhi, to be available to the Ministry for advice from day-to-day.

The most

The management of the Steel Works at Rourkela is under a mpany—Hindustan Steel T 22 The shof Rs. 100 crores and an issued and paid-up capital of the share capital of this comment. The share capital of this company is to be subscribed by the ernment of India and the Company is to be subscribed by Kripp D ernment of India and the German Combine—Indiangement to one. the Krupp-Demag G.m.b.H.—in Krupp-Demag G.m.b.H.—in the proportion of four to by Board of Directors consist Board of Directors consists of eight directors nominated by The Government of India and to describe the description of the combine of the com Government of India and two directors by the German Combined day-to-day administration day-to-day administration of the company is carried Adviser Managing Director who is assisted by a Financial Adviser.

The construction of the Steel Works at Bhilai has been entrust to a Project Division with a Gamma at the head finance General Management entrustion of the Steel Works at Bhilai has been entrustion of the Steel Works at Bhilai has been entrustion ed to a Project Division with a General Manager at the head financial and accounts assisted in the second seco The General Manager is assisted by a Financial Adviser on technical and accounting matters and a General Manager on technical and accounting matters. General Manager at the near final at the near th

The construction of the Steel Works at Durgapur will be, essent negotiations with the Indian Grant Construction time.

1. are successful present negotiations with the Indian Steelworks At the same bit there will be there will be appointed a General Manager and the responsitions of the Government of India with responsible to the superior of Ltd. are successful, entrusted to that company. At the same there will be appointed a Company. of the Government of India with regard to local administration and the supervision of the works advice on the supervision of the works and the supervision of the works are supervision of the works and the supervision of the works are supervision. or the Government of India with regard to local administrate matters and the supervision of the work is proposed to to to to the district ed through a General Manager who will be available to the chain advice and assistance. matters and the supervision of the work is proposed to be him ical ed through a General Manager who will have available advice and assistance of the Consulting Transport on all technical advice and assistance of the Consulting Transport on all technical advice and assistance of the Consulting Transport on all technical advice and assistance of the Consulting Transport on the Consulting Transport on the Consulting Transport of the Consulting Trans supervision of the work is proposed to be him to advice and assistance of the Consulting Engineers on all matters. To carry out the acquisition of land, clearance of the site and similar preliminary work on the site, a field office has been established at Durgapur with a Project Administrator at the head of it of it.

The Foundry at Nahan which was taken over from the Sirmur Darbar is owned by the Government of India entirely. The management of India entirely. Nahan ment of the Foundry has been entrusted to a company—Nahan Foundry has been entrusted to a company—nahan Foundry Ltd. The Board of Directors consists of four nominees of the Government of the Government of India and four nominees of the Government of Himachal B. the Government of India and four nominees of the Government of India and India an Himachal Pradesh with the Chairman appointed by the Government of India and four nominees of the Foundry is ment of India. The day-to-day administration of the Foundry is entrusted to a General Manager. Under the Presidential Order dated to a General Manager. Under the Presidente transferred to 1956, the subject of foundries has been transferred to the Ministry of Commerce & Industry.

CHAPTER II

HINDUSTAN STEEL LIMITED

The first result of the Government's efforts to enter into suite arrangement with a government's efforts to enter into suite arrangement with the content of able arrangement with steel makers of established reputation for financial and technical financial and technical association in the establishment of steel plants in the public plants in the public sector was an agreement between the ernment of India and Ind ernment of India and the German Combine of Krupps and Demag in 1953. Following the in 1953. Following the agreement with this German firm, the Hindustan Steel 1+3 Hindustan Steel Ltd. was promoted with an authorised capital of Rs. 100 crores and an interpretation of the Rs Rs. 100 crores and an issued and paid up capital of Rs. 5 lakhs, of which Rs. 4 lakhs was which Rs. 4 lakhs were contributed by the Government of India and Rs. 1 lakh by the G and Rs. 1 lakh by the German Combine. In May 1954 the German Combine submitted Combine submitted a preliminary Project Report for a plant of million tons ingots care million tons ingots capacity. After this was approved, the Technical Consultants submitted a preliminary Project Report for a Plantary, nical Consultants submitted a preliminary Project Report for a Plantary, nical Consultants submitted a preliminary Project Report for a Plantary, nical Consultants submitted a preliminary Project Report for a Plantary, nical Consultants submitted a preliminary Project Report for a Plantary Project Project Project Proje nical Consultants submitted the Final Project Report in the 1955. Meanwhile it 1955. Meanwhile, it was decided to increase the capacity of plant from ½ million to the plant from the plant f plant from ½ million tons to 1 million tons steel ingots per annum, with the result that a St. with the result that a Supplementary Agreement was signed tween Hindustan Stool Trib tween Hindustan Steel Ltd. and Messrs. Indian Gemeinschaft Krupp-Demag G.m.b.H on the Agreement was signed this Krupp-Demag G.m.b.H. on the 21st July, 1955. A copy of Agreement is at Appendix T Agreement is at Appendix I.

2. In terms of this agreement, the German Combine submitted plant November 1. the first part of the Final Project Report for the 1-million-ton Goving Plant of the Final Project Report for the 1-million-ton Goving Plant of the This Power to the 1-million by the Coding Plant of the Indiana by the Coding Plant of the Indiana by the Indiana in November, 1955. This Report has been scrutinized by the fications. ernment with the help of experts and approved with certain fications. The main sections of th fications. The main sections of the plant, as approved, are:

(a) A coking plant with a capacity of about 1.6 million of coal "through protein" of coal "through-put" per annum;

(b) A blast furnace plant consisting of 3 furnaces to with noted (to be increased) with (to be increased to 4 furnaces later on)
noted output of 1000 noted output of 1,000 tons per furnace per day;

(c) A steel melting shop employing mainly the oxygen ing process (L-D ing process (L-D process); and

(d) A large rolling mill plant of modern design for hot strips upto 1525, including cold rolling, including a broad strip upto 1.525mm in width.

The plant will manufacture 720,000 tons of flat products from me million to will manufacture prothe plant will manufacture 720,000 tons of that produce stamme common tons of ingot steel per annum. The manufacturing pro-Stamme comprises heavy plate for ship building, locomotive construction, boiler making, track building, etc. and light plate and track building, the and cold rolled, tinned and galvanized.

doption of Line Des feature of the Rourkela plant will be the An outstanding feature of the Rourkela plant will be welconed in Annawitz (L.D) oxygen blowing process which Was developed in Austria in recent years and is employed in about American Continue in the world, four of them being on the North American Continent. This process is expected to have the ad-Valtages of lower capital and operating costs, higher rate of prodigition and saving in space and auxiliary equipment. This process yield nit also yield nit which would be used for will and saving in space and auxiliary equipment. This process to the manufacture of factors of the one million tons of inthe hanufacture of fertilizers. Out of the one million tons of in-Sols in Manufacture as a by-product winc.

Sols to be produced at the Rourkela plant annually, 750,000 tons

The process and the balance by the be produced at the Rourkela plant annually, 750,000 tons process and the balance by the process are expected to submit the be produced at the Rourkela plant and second hearth process. The L-D process and the balance by the L-D part of the Final Project Report by the middle of March, by the L-D process and

The Consultants are expected to submit the Final Project Report by the middle of March,

the portions of the plant and construction as did not involve And redesigning plant and construction as did not involve And radical redesigning. For instance, specifications were prepared (1) Coke ovens and by-products plant;

(3) Blast furnaces;
(4) Blast furnace gas cleaning plant disintegrators; (4) Blast furnace gas cleaning plant disintegrators, (5) Store house gas cleaning plant electrostatic fitters: (6) Skull houses;
(7) Skull cracker steel construction;

(7) Skull cracker succes;

(8) Scrap cracker cranes;
(9) Scrap yard steel construction; (9) Stab yard steel construction. halling tenders are under the V.

Addition Steel construction.

Addition of the works are being finalized and arrangements of the manufacture and erection before under examination. Specifications sections end of May 1956 for the manufacture and erection Sections end of May 1956 for the manufacture.

May 1956 for th

CHAPTER II

HINDUSTAN STEEL LIMITED

The first result of the Government's efforts to enter into suite arrangement with a contempt of the contempt o able arrangement with steel makers of established reputation for financial and technical financial and technical association in the establishment of steel plants in the public and plants in the public sector was an agreement between the Government of India and the ernment of India and the German Combine of Krupps and Demag in 1953. Following the in 1953. Following the agreement with this German firm, the Hindustan Steel Ital Hindustan Steel Ltd. was promoted with an authorised capital of Rs. 100 crores and an interpretation of the Rs Rs. 100 crores and an issued and paid up capital of Rs. 5 lakhs, of which Rs. 4 lakhs were which Rs. 4 lakhs were contributed by the Government of India and Rs. 1 lakh by the Government of India and Rs. 1 lakh by the German Combine. In May 1954 the German Combine submitted a plant of Combine submitted a preliminary Project Report for a plant of million tons ingots constitutions. In May 1954 the German Combine. In May 1954 the German of the Techmillion tons ingots capacity. After this was approved, the Tanuary, nical Consultants submitted. nical Consultants submitted the Final Project Report in January, the 1955. Meanwhile it was a proved, the 1955. 1955. Meanwhile, it was decided to increase the capacity of plant from 1 million tonplant from ½ million tons to 1 million tons steel ingots per with the result that a Samuel of the steel ingots per signed between the capacity of the plant from 1 million tons steel ingots per annumber of the period of the per with the result that a Supplementary Agreement was signed between Hindustan Steel 143 tween Hindustan Steel Ltd. and Messrs. Indian Gemeinschaft Krupp-Demag G.m.b.H Krupp-Demag G.m.b.H. on the 21st July, 1955. A copy of Agreement is at Appendix I Agreement is at Appendix I.

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- (a) A coking plant with a capacity of about 1.6 million of coal "through-put"
- (b) A blast furnace plant consisting of 3 furnaces to with noted to be increased. with (to be increased to 4 furnaces later noted output of 1000 noted output of 1,000 tons per furnace per day;
- (c) A steel melting shop employing mainly the oxygen blowing process (L-D process) ing process (L-D process); and
- (d) A large rolling mill plant of modern design for strips upto 1.525. mill for strips cold rolling, including a broad strip upto 1.525mm in width.

The plant will manufacture 720,000 tons of flat products from Tamme community of ingot steel per annum. The manufacturing programme comprises heavy plate for ship-building, locomotive constituction, holland light plate and Struction, boiler making, track building, etc. and light plate and Strip, hot and cold rolled, tinned and galvanized.

3. An outstanding feature of the Rourkela plant will be the *** An outstanding feature of the Rourkela plant will a developed in about Was developed in Austria in recent years and is employed in about eight Steel Works in the world, four of them being on the North American Continent. This process is expected to have the ad-Vantages of lower capital and operating costs, higher rate of production and saving in space and auxiliary equipment. This process will also yield nitrogen as a by-product which would be used for the manufacture of fertilizers. Out of the one million tons of in-Manufacture of fertilizers. Out of the one million tons of manufacture at the Rourkela plant annually, 750,000 tons will be produced at the Rourkela plant annually, 750,000 to second by the L-D process and the balance by the March, be manufactured at the Rourkela plant and second parth process. The Consultants are expected to submit the Depart by the middle of March, Second hearth process. The Consultants are expected to submit of the Final Project Report by the middle of March,

change order to minimise any loss of time consequent upon the any radical million tons capacity plant, work was continued on the plant and construction as did not involve The such over to minimise any loss of time consequence of the plant and construction as did not involve specifications were prepared Tadical redesigning. For instance, specifications were prepared tenders obtained for the following:— (2) Rice ovens and by-products plant;

- (3) Blast furnaces;
 (4) Blast furnace gas cleaning plant disintegrators;
- (4) Blast furnace gas cleaning plant disintegrators,
 (5) Store house gas cleaning plant electrostatic fitters: (6) Skull houses;
 (7) Skull cracker steel construction;
- (8) Skull cracker occars;
- (8) Scrap cracker cranes;
 (9) Slak yard steel construction; (9) Stap yard steel consum. ing sont: are under
- the sections of the Works are being finalized and arrangements of the Mary 1056 for the manufacture and erection of these sections. before under examination. Specification.

 Sections of the Works are being finalized and arrangement.

 May 1956 for the manufacture and erection

the Indian Bureau of Mines Iron ore deposits, etc., of of the main raw materials, viz., iron

le sindian Bureau of Mines. Iron ore deposits, etc., of

suitable quality and quantity have been proved in the Taldih range close to Roughola ore is close to Rourkela, and at present a scheme for mining iron ore is being worked out being worked out. An agreement has been entered into with Messrs. J. W. Wooden agreement has been entered into with Messrs. J. W. Woomer & Associates, Pittsburgh, mining consultants.

Drilling for limesters. Drilling for limestone is going on in the Hathibari area near Birmit rapur. At the same is rapur. At the same time action has been taken for prospecting of deposits in Bilaspur Division action has been taken for prospecting is also deposits in Bilaspur District (Madhya Pradesh). Dolomite is also being tested for suitable. being tested for suitability as to lining of the converters to be used for the L-D process for the L-D process.

6. The civil engineering work at Rourkela is making good progress. Office buildings are under construction and both temporary and permanent roads are and permanent roads are being laid. At the plant site; land is levelled, temporary offen levelled, temporary offices have been constructed and water is power services are being laid. At the plant site; land 15 and power services are being laid. At the plant site; land 15 and water is power services are being laid. power services are being provided. For the time being, water A being drawn from the being drawn from the nearby rivers Koel and Brahmani.

In interior wells have been constructed to water A being drawn from the nearby rivers Koel and Brahmani. number of wells have been sunk and water is being pumped up into reservoirs. In view up into reservoirs. In view of the apprehended shortage of to during summer months in the locate during summer months, investigations have been undertaken the locate a site for a suitable locate a site for a suitable reservoir which will supplement water already available in the supplement water already available in the supplement will supplement with supplement power supplement. water already available in the Brahmani river. Temporary power supply has already been arrows. supply has already been arranged through the Government of the are under In addition, two generating sets of 150 k.w. have been installed the entire of covering bet are under operation. High tension transmission lines covering bet entire area now total 20 miles. entire area now total 20 miles. The survey of the railway pleted by the and the source of the railway has been pleted by the railway pleted by the railway to the railway pleted by the railway pleted ween Rourkela and the source of iron ore (Taldih) has been pleted by the Railways.

7. Project estimates have been prepared for the Rourkela of ip and are under scruting of the township here. ship and are under scrutiny of the Government. A Master rogress the township has been prepared to the Government. A Moster plans ing. Detailed 1. the township has been prepared and construction work is being. Detailed lay out of the worked out. ing. Detailed lay out of the various sectors of the township worked out. Apart from the common the contraction work accommon to the officer of the officer of the contraction to the officer of the township accommon to the officer of the officer of the contraction to the officer of the office worked out. Apart from the construction of temporary accommodes to five been construction of temporary accommodes have been construction staff at the construction of temporary accommodes have been construction. tion for the offices and staff at the site, about 100 permanent the the tomostructed and 200 mere the tomostructed and 200 mere the tomostructed and 200 mere the terminal tom have been constructed and 200 more houses are under construction of the trainees of the cians are two hostels prices are two hostels prices. Amongst the other buildings under construction are two cians and a shopping shopping construction of temporary nent retion.

Amongst the other buildings under construction are two districtions and a shopping cians and a shopping construction are two districtions. the trainees of the Technical Institute, a hostel for German road A miles long connection centre. West about 100 per constitute of the Technical Institute, a hostel for German road A miles long connection centre. cians and a shopping centre. Work has started on Hamitput been temporary hospital the township. temporary hospital with adequate medical staff has auti-malaria squad has squad has a hostel for Garried on a ring of the connecting the township to the village of the carried out and the carried out of provided. A malarial survey of the area has been carried on the six months good results.

Work has started on Hamity her provided of Hamity her provided. A malarial with adequate medical staff has already and the starting anti-malaria squad has been operation. anti-malaria squad has been operating for the last six months.

8. The total

8. The total strength of the regular employees of the Company out 900. More than 5,000 labour employees employed by about 900. More than 5,000 labourers have been employee

placed perconnection the site. Every effort is made to rehabilitate the displaced persons, whose lands had to be acquired for the plant and township sites. A great majority of these have already been pro-

Besides the initial share capital amounting to Rs. 4 lakhs, Government of India have so far advanced to the Company a sum of Rs. 6.5 crores towards expenditure on construction.

CHAPTER III

BHILAI STEEL PROJECT

In the year under review, considerable progress has been made. Negotiations were started with a Russian team of steel experts in connection with this plant. connection with this plant in November, 1954. In January An agree Soviet Organisations submitted a preliminary report. An agreement was thereupon signed to ment was thereupon signed between the Government of IISSP the Government of U.S.S.R. on the 2nd February 1955 providing technical and economical technical and economical assistance for the setting up of a million integrated iron and steel word. integrated iron and steel works with an initial capacity of 1 million tons of ingot to be rolled into Table 1 million and steel works with an initial capacity of 1 million tons of ingot to be rolled into Table 1 million and products. tons of ingot to be rolled into 750,000 tons of finished products. accordance with the agreement of the setting of 1 million in the setting of accordance with the agreement, the plant will be designed mer duce rails, heavy structurals. duce rails, heavy structurals, sleeper bars, crossing sleepers, the eventual chant bars and billets and and are sleepers, the eventual chant bars and billets and are sleepers. chant bars and billets and provision will be made for the eventual expansion of its capacity to 1 and 1 and 2 and 2 and 2 and 2 and 2 and 300,000 and 2 and 2 and 2 and 2 and 2 and 300,000 and 3 and expansion of its capacity to 1 million tons of rolled products was selected. 300,000 tons of foundry pig iron for sale. The site for the plant was selected in March 1955 and in a Corporation will be made 101 to be slave to 300,000 tons of foundry pig iron for sale. The site for the Soviet selected in March 1955 and in a Corporation of the site for the Soviet selected in March 1955 and in a continuous selected in the c selected in March 1955 and in terms of the agreement, Report of the project Report Report Report Report Report Organisations were required to submit a detailed Project August S.R. tember 1955 the proposed plant by the 15th of December 1955. In August S.R. tember, 1955, a delegation of Indianal and gains. proposed plant by the 15th of December 1955. In August S.R. tember, 1955, a delegation of Indian steel experts visited the steel and gained valuable first hand works and and gained valuable first hand information about Russian the works and machinery manufactured the united the u works and machinery manufacturers. They studied U.S.S.R. 9th details of the plants and steel experts visited in steel experts visited in steel works about Russian hical works and machinery manufacturers. They studied U.S.S.R. 9th details of the plants and steel experts visited in steel experts visited visited in steel experts visited visit works and machinery manufacturers. They studied the U.S.S.R. 9th details of the plants and steel making practices in the U.S. the B. were fully satisfied with what the December 1955 were fully satisfied with what they saw and learnt. Mr. the December 1955, a team of Processing the studied the S.R. and the B. Khlebnikov the saw and learnt. December 1955, a team of Russian experts headed by from the Khlebnikov, the Deputy Minister for the U.D. the B. On t Khlebnikov, the Deputy Minister for Iron & Steel, arrived availa U.S.S.R. to present the Detailed to the Company of the Compan U.S.S.R. to present the Detailed Project Report and to be India to the Government of India during experts and the Country of the Report. to the Government of India during scrutiny of the Report of Steel, who examined in experts and the Consulting Engineers to the Government of the Report of who examined the Report in data. who examined the Report in detail consider it exhaust also thorough. The Report has been India with a few modifications. The Soviet Organisations as well as in the U.S.S.R. submitted a scheme for the training of personnel in India as well in the U.S.S.R.

ernment of India have assumed responsibility for railway richter plant site, construction of building and construction of building a ernment of India have assumed responsibility for the plant site, construction of buildings, roads, planning and construction of township, procurement of the procurement of the plant site.

responsibilities. A Project Division was set up for discharging these responsibilities immediately after the Agreement was signed in Rebruary 1955. The headquarters of the Project Division were shifted to 12. shifted to the site of the Works at Bhilai on the 17th of May, 1955, and a General Manager appointed in charge of it. In spite of censiderable difficulties with regard to living conditions and amenities, the Project D. the Project Division has done well in 1955 and satisfactory progress has been recorded on most of the preliminary works. Preliminary geological investigations in respect of iron ore, dolcraite, limestone management of the preliminary works. and manganese ore deposits which will be exploited for the plant Were undertaken by the Indian Bureau of Mines. A team of Soviet hining experts headed by Mr. Maleshkin, Deputy Minister of Iron was 1056 and had discussions & Steel, U.S.S.R. arrived in India in January 1956 and had discussions With the officers of the Indian Bureau of Mines. As a result, the limited experts he of iron ore, Soviet experts have prepared a scheme for the designing of iron ore, staphical survey of the mines for the Bhilai Plant. Detailed topographical and dolomite mines for the Bhilai Plant. Detailed to the has her for the plant site and the area required for the law. have also been mode to the Survey of India. Investigations have also been completed by the Survey of India. Investigationed site purposes. The Prove the suitability of the site for construction passes through the selecttion purposes. The Tanduia Canal which passes through the selected site of the Works is being diverted over a length of about 2½ miles.

3. Acquisition of land is in progress. 3,425 acres of land have possession of land is in progress. 3,425 acres of land have been Acquisition of land is in progress. 3,425 acres of land nave hallway experts are out of 14,000 acres to be acquired. The form Railway possession of out of 14,000 acres to be acquired. The browing sidings for the steady out the details of the requirements of the supply well as for mining areas. For Railway experts are working out the details of the requirements of the steel plant as well as for mining areas. For more and adequate water supply browing sidings for the steel plant as well as for mining areas. For the steel plant as well as for mining areas. For the found people arrangements and adequate water supply deepen the existing Maroda tank it has been the steel plant as well as for minimal states been found necessary to deepen the existing Maroda tank the plant site and all and plant site the supply it. Temporary arrangements have also been made for water hoth for drinking and construction purposes.

Drug, has supply of it. Temporary arrangements have also been made to water of water both for drinking and construction purposes. he water of Water both for drinking and construction purposes. The bold of the both for drinking and construction purposes. The bold of the Municipal Committee, Drug, has and treated the from this source will be supplied order to taken works belonging to the Municipal Committee, Drug, name to the Municipal Committee, Drug, name to the Municipal Committee and treated water from this source will be supplied works site. In order to Labour over and treated water from this source will be supplied water from the supplied water from the source will be supplied water from the source will be supplied water from the source will be supplied water from the capacity of the water works site. In order to water works, especially during the sum over and treated water from this source will be summer capacity of the Drug Water Works, especially during season a wain is being constructed across the Sheonath e sum the capacity of the Drug Water Works, especially during weir is being constructed across the Sheonath

Madhilectric power required for the plant will be supplied by the by rediate a 90,000 k.w. thermal station at Korba. The power the Raipur Power House. Eite Name the Raipur Power House.

Burvey of the township site is nearing completion.

Continue Raipur Power House.

Burvey of the township site is nearing completion.

Continue Raipur Power House.

pared by the Russian Consultants. A hostel to accommodate summarried officials in unmarried officials is nearing completion. 32 residential quarters are also under constant. are also under construction. The lay out plan of the first sector of the township possess. of the township nearest to the factory site has been prepared and construction of 300 been prepared to the factory site has been prepared to the factory site has been prepared to the factory site has been prepared and construction of 300 been prepared and cons construction of 300 houses has commenced. For housing construction labour, two camps and one labour, two camps are being erected near the factory site and one camp near the iron camp near the iron ore deposits.

CHAPTER IV

DURGAPUR STEEL PROJECT

The scheme for the setting up of the third steel plant in the Public sector has made good progress during the year under review. Government decided early in 1955 that it would be necessary to construct the third steel plant to achieve the target of 6 million tons of steel ingots by 1960. In April 1955 the services of a Technical Mission from the U.K. were secured under the Colombo Plan to study the U.K. were secured under the Colombo Pian & Stablishment of the Colombo Pian & Stablishment of the Colombo Pian & Second Five-Year Plan Period. The Maintenance of a third Steel Plant during the Second Five-Year bod by Sir Eric Coates, sub-Plan Period. The Mission, which was led by Sir Eric Coates, sub-Mitted its report in August 1955 after visiting several sites in Bihar Bengal Tr. and West report in August 1955 after visiting several sites in plant ethers. In taking indication given by the Gov-Durgapur. In taking into account the indication given by the Government of India about the indication given by the Government of India about the indication given by the Government of India about the indication given by the Government of India about the indication given by the Government of India about the indication given by the Government of India about the indication given by the Government of India about the indication given by the Government of India about the India abo enment. In taking into account the indication given by the cross the conclusion that about the products to be manufactured, it came a such conclusion that a plant of 1 million ton ingot capacity, to roll to the conclusion that a plant of 1 million ton ingot capacity, to roll the products. Would be seen and a plant of 1 million ton ingot capacity, to roll the products. The recommendations contained in the report of the Mission were The products, would be not only economical but quite profitable.

Senerally accepted by Commendations contained in the report of the Mission were

And the Indian Steelworks Construction Company at London, a of leading Duitied and other allied interests, was Consortium of leading British steel and other allied interests, was discuss ways and means of constructions. invited to send a delegation to discuss ways and means of construction of heading British steel and other allied interests, was a delegation to discuss ways and means of construction from the Consortium, led by its Chairting the send a delegation to discuss ways and means of constructions. In Cyril Jones arrived in New Delhi on the 21st of December assisted Jan, Sir Cyril A delegation to discuss ways and ...

by India Ministries of Fig. 200 & Steel, who were assisted The Ministries of Finance and Iron & Steel, who were assisted experts and the Companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of Finance and Iron & Steel, who were assisted for the companies of the companies o Jindian Ministries of Finance and Iron & Steel, who were assisted the Consulting Engineers—Messrs. Inter-Thational Consulting Engineers—Messrs. Interthere was a satisfactory basis for Consolid Construction the Consulting Engineers—with the Consulting into find out whether there was a satisfactory basis for the contract with a single agency for the supply of equip.

This method The sterilium to find Company—directed the discussion of the aingle agency for the supply of equipont of the steel plant at Durgapur. This method the single and out whether there was a satisfactory of equipmentally into a contract with a single agency for the supply of equipmentally into a contract with a single agency for the entire work, in the speedy fentering into a contract with a single agency for the steel plant at Durgapur. This metnow which the steel plant at Durgapur. The entire work, is expected to help in the speedy We stand the erection of the steel plant at Durgapur.

Which is a contract with a single agency for the entire work, would be project and thereby save as much as 8 to 12 months of detailed plans, Wilarly into a contract with a single agency for the speedy the project and thereby save as much as 8 to 12 months and the property in the preparation of detailed plans, During Whition called a contract with a single which of the package deal", is expected to help in the season otherwise and thereby save as much as 8 to 12 months and in the preparation of detailed plans, inviting global tenders. During inviting global tenders. the signs would the project and thereby save as much as o consider the specifications and in the preparation of detailed plans, the broad details of the plant were agreed upon. these and otherwise be spent in the preparation of actual discussions the broad details of the plant were agreed upon. These were examined by

the Government of India with the assistance of the Consulting Engineers. Negotiation Engineers. Negotiations were then continued to arrive at an acceptable basis for the table basis for the price and credit terms.

4. A broad agreement has been reached and it is expected that the remaining details. all the remaining details will be settled before the end of June 1956.

The plant, machinement The plant, machinery and equipment and a considerable part of steel structures, refractories structures, refractories and other materials required for the plant will be supplied by the will be supplied by the member firms of the British Consortium.

The Consortium will also The Consortium will also carry out the entire work of erection and civil engineering at site civil engineering at site under the supervision of the Consulting Engineers to the Government and Engineering at site under the supervision of the Consumant and Engineers to the Government of India. The plant, equipment and material is expected to material is expected to cost, in foreign exchange, about £50 million. The cost of erection aimilion is expected to cost, in foreign exchange, about to be obtained. The cost of erection, civil engineering and materials to be obtained in India is expected to be obtained and india is expected to be obtained in India. in India is expected to be about Rs. 39 crores. In addition there will be the actual cost of shinning.

5. For financing part of the foreign exchange cost of the plants syndicate of British hards. a syndicate of British banks has agreed to give credits bank millions. The rate of interest millions. The rate of interest will be 1% above the prevailing that rate but the credits will be 1% above the prevailing that the latter half of the credits will be a second to give or a second to give the prevailing that the latter rate but the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevailing that the latter half of the credits will be a second to give the prevail the latter half of the credits will be a second to give the prevail the latter half of the credits will be a second to give the prevail the credits will be a second to give the prevail the credits will be a second to give the give the credits will be a second to give the credits will be a rate but the credits will be drawn upon only towards the latter half of the Second Five Very Di

6. The United Kingdom Government have also offered a loan the project. the millions towards the forcing of the project. £15 millions towards the foreign exchange cost of the project. the rate of interest for this loan will be the same as that at which to U.K. Government borrow in the same as small element only. U.K. Government borrow in their market, plus a small element to towards the cover administration charges. This loan will also be Meanwhile, the payment towards the latter half of the Second Five Year Plan.

India's own the payments during the next two years or so will be made out India's own resources.

7. Work preliminary to the construction of the plant has officer pointed as Pronas already commenced. An experienced officer field over appointed as Project Administrator and he has set up his taken of the D.V.C. Colors as a temporary me Some houses in the D.V.C. Colony nearby have been conduction and a survey is her as a temporary measure. Soil tests of the site have been acquisition and both for the progression. and a survey is being undertaken. Proceedings for the acquisition of land both for the siting of the site have township progress. of land both for the siting of the plant and the township progress.

CHAPTER V

NAHAN FOUNDRY LIMITED

The Nahan Foundry was established about 80 years ago by the Maharaja of Sirmur. It was taken over by the Government of India in 1952 and a private limited company registered under the Indian Companies Act was formed in October 1952 for the management of the Foundry. The Company formally took over the management of the Foundry. The Company formally took over the management Company is company is company 1953. The Board of Directors of this Company from 1st January 1953. The Board of Directors of the Board of has been nominated by the Government of India and the Himachal

2. The Foundry manufactures agricultural implements, the most these hairs. Owing to keen competitive Dopular of these being sugarcane crushers. Owing to keen competiharket in Pakistan the Board of the loss of the unable to maintain the Market in Pakistan, the Foundry has been unable to maintain the Margin of Pakistan, the Foundry has been unable to maintain the state of the state Covernment. Attempts have been made in recent years to develop items of action with the capacity and the cap Retainment. Attempts have been made in recent years to develor that more fully manufacture so as to utilise the capacity and start manufactured during the Derson new items thave been made in recent vetral more fully. The principal items manufactured during the

	`,									8 0110
Sultan mills dased Mawab mills dased Cast iron pan 72" Blace	Name On frames	of artic	cle	_						Quantity produced
Do. Pan 72". Do. 56" Chaff cutter pans Do. 50"	33	•	•		•					Nos.
Charles sheet Pans Do. ording Maiser-I-Hipowe	•	•	•	•	•	•	•	•	•	1,018
Doutter pans	•	•	-	•	•		•	•	•	3
Do. ball be ball be ball be ball be	am.	•	•	•	•	•	•	•	•	28
alger 1 politically	ear type	•	•	•	•	•	•	•	•	84
Mai Do Hind	t drie type	•	•	•	•	•	•	•	•	811
approxe approx on	lock	-	•	•	•	•	•	•	•	62
Maik cliers I	ower driver	i flor	•	•	•	•		•	•	47
o alla bra	drive	en ac	$\mathbf{mill_{S}}$	•	•	•		•	•	8
Pall Pag	s type .	- 110A1	mills	•	•	•		•	•	1
Maixe shellers I Do. mills bras	s type aring type	•	•	•	•	•	•	•	•	87
^{vt} 1 .	, s type	•	•	•	•	•		•	•	20
40				•	•	•	•	•	•	5
of 1 & S.				<u> </u>	•	•	•	•	•	2
			15			~· ~~· ~ . •			•	2

									Quantity produced
		,	Name (of arti	icle				
		•	14						Nos.
									34
								•	• 9
Paddy thrasher po	wer đriven	•	•	•	•	•	•	•	• 3
Meston plough		•	•	•	•	•	•	•	• 15
Centrifugal pump	6"×5"			•	•	•	•		• 4
Do.	5"×4"	•		•	•	•	•		. 2
Do.	4"×4"		•		•	•	•		. 1
Do.	4"×4" di	rect c	oupled		•	•	•	•	. 2
Do.	4"×3"		•	•	•	•	•		44,646.
Super sarovar			•		•	•	•		· 48.300
Saddle 'A' for P	& T. Depar	tment			•	•	•	•	20,185
" 'B')) ·	•	•	•	•	•	•	•	315
C.I. anchor plate		avs		•	•	•	•		, 41
Axle plate for Ra	ilways .					•	•	•	. 19
Mud plug for Ra	ilways .			•	•	•	•		. 37
O1. 1	-do				•	•	•		·
Fusible plugs	-do			•	•	•	•		& T orders.
								a P	&

The Foundry was able to secure some Railway and P & nich helped it to which helped it to keep its capacity fairly engaged.

- 3. The Foundry has its own power house which generates the pplies electric energy to the quirement supplies electric energy to the town of Nahan besides meeting press which requirements of the factory. It is besides meeting press which besides meeting press takes requirements of the factory. It has also a small printing press undertakes work for the besides meeting the requirements of the Foundry, also undertakes work for the public, on payment
- 4. The Foundry has its own sale agencies spread over the facilities dup. with mobile workshops its customers and U.P. with mobile workshops for affording repairing tally 649 to its customers. 38 of these agencies spread over facilities and the second state of the second state of the second se to its customers. 38 of these agencies are run departmentally of spersons at its management of the second state of the second 93 function on a commission basis. The Foundry has staff addition, about 100 addition, about 100 workers are temporarily engaged every heavy work in the hiring persons at its works and various hiring and sales agencies addition, about 100 workers and various hiring and sales agencies of the correction of the correc during the cane-crushing season to cope with the heavy work in the hiring and sales
- 5. A copy of the Directors' report, Profit and Loss Account dix

 e Balance Sheet of the Company for the Foundry succession reads. 5. A copy of the Directors' report, Profit and Loss at Appendic the Balance Sheet of the Company for the year 1954-55 is at Appendic main reason for the loss of the Company for the year 1954-55 is at year. The main reason for the loss of the loss II. The Foundry suffered a loss of about Rs. 95,000 that year in its face Foundry which affected not continuous labour also but a Foundry which affected not only its production but also to the period the Competition from cheef Besides, throughout the period the Company's products of under the period the Company's products. There were a loss of about Rs. 95,000 tras rest sales also under the period to only its production but also do not only its production but had privy's competition from cheaper, often such a products of under the period the Company's products of under the period the company the period the company the period the period the company the period competition from cheaper, often sub-standard, products rounding the sub-standard, products and some trade Mark and some competition from cheaper, often sub-standard, products roungular enterprise. There were cases of infringement of Trade Mark and some manufactures.

charges to keen competition, not only had the prices and hiring charges to be reduced, but the expenditure on exhibition and advertisements had to be increased which reduced the margin of

6. The ways and means of improving the management and working of the Foundry so as to make it a profitable concern, has been gaging the management. Government engaging the Foundry so as to make it a profitable concern, mas and india appointment attention of the Government. Government of India appointed a Committee composed of Shri Radhey Lal Vyas, Member of Daniel a Committee composed of Shri Radhey Lal Vyas, Member of Parliament, as Chairman and Shri P.M. Nayak, I.C.S.,

A Puty Secret. Deputy Secretary, Ministry of Production and Shri B. P. Sinha, Assistant Deval P. Ministry of Com-Assistant Development Officer, Development Wing, Ministry of Comherce and Industry, as members to enquire into the causes of the labour unrest and to recommend measures for the all round improvement of the Foundry. The Committee has submitted its report and on it is a decision on it is expected to be taken very shortly.

CHAPTER VI

í

SUBSIDIARIES

COAL

While the establishment of the main steel works is in itself a pendous task there. stupendous task, there has got to be developed many subsidiary industries to maintain the industries to maintain the main steel works. The chief of these are iron ore mines and coal mines.

- 2. The three steel plants together will require about 5.2 million as of coking coal parts together will require about 5.2 million tons of coking coal per annum. A number of expert committees have gone into the country and have gone into the question of coal reserves in the country the their utilisation. The country the their utilisation. The consensus of their opinion is that while is reserves of non-metalliments. reserves of non-metallurgical coal are sufficiently large, the same is not the case with metallurgical are sufficiently large, the same tallurgical coal are sufficiently large. not the case with metallurgical coal are sufficiently large, the same lurgical coal is not a problem. It might, therefore, be expected that there would be technical advances which would find alternative mould be technical advances which lurgical coal is not a problem peculiar only to this country. would either eliminate the necessity for the use of metallurgical coal to at least reduce the description and steel wind and steel wind and steel wind coal to a steel wind and steel wind and steel wind and steel wind coal to a steel wind and stee coal or at least reduce the dependence on good quality metallurgical most econt. But the coal to a large extent. But the immediate problem is of making the measures. But the immediate problem is of making the Measures is the large extent. most economical use of the known reserves of metallurgical the non-essential the months and the metallurgical that he months are served to metallurgical than the metallurgical that he months are served to metallurgical than the metallurgical that he months are served to metallurgical than the Measures have been taken to conserve this coal by ensuring that At non-essential consumers adopt non-essential consumers adopt gradually other alternative fuels should be seen to be a seen to b the same time, it has been recommended that metallurgical the washed so that its and it would be a summer to conserve this coal by ensuring the same time, it has been recommended that metallurgical the same time, it has been recommended that metallurgical the same time and the same time. it would be possible to blend it with coking coals, which otherwise cannot be used directly for maken cannot be used directly for metallurgical purposes.
- 3. The major sources of coking coal are in Kargali/Bokaro to sh the coking coal are in the coking coal are the A Government washery is being installed at Kargali in million tonwash the coking coals which would be raised by Government used that the steel works at 5 of washed area. 1.6 million tons of washed coal from Kargali will be supplied to the steel works at Rourkela and Running the supplied to the steel works at Rourkela and Running the supplied to the sup the steel works at Rourkela and Bhilai. To augment these supports is now exploring. coal from Jharia will also be required. The Ministry of Ling coals in The steel best moth. is now exploring the best method of washing coking of the tall coals in that area works at Durant coals from the designed that area works at Durant coals in the designed that area works at Durant coals in that area works at Durant coal trom Kargan these set Step in the step is set of the coals in the coals in that area works at Durant coal trom Kargan these set Step is set of the coals in the coals in that area works at Durant coal trom Kargan these set of the coals in the coals in the coals in that area works at Durant coals in the coals in the coals in the coals in that area works at Durant coals in the coals in the coals in the coals in that area works at Durant coals in the coals in that area works at Durant coals in the Jharia. The steel works at Durgapur will be so designed for pur works at Durgapur will be so designed to pur wo coals in that area which would otherwise be unsuitable for pur works will use a site of the metal of the site of t lurgical purposes would be used after suitable blending. The site of pur works will use Jharia coal which will be washed at the

CHAPTER VI

SUBSIDIARIES

While the establishment of the main steel works is in itself a subsidiary stupendous task, there has got to be developed many subsidiary industries to maintain the industries to maintain the main steel works. The chief of these are iron ore mines and cool iron ore mines and coal mines.

2. The three steel plants together will require about 5.2 million as of coking coal per committees tons of coking coal per annum. A number of expert committees have gone into the guest. have gone into the question of coal reserves in the country the their utilisation. The country is their utilisation. The consensus of their opinion is that while is reserves of non-metallumical reserves of non-metallurgical coal are sufficiently large, the same is not the case with metallurgical reserves of non-metallurgical coal are sufficiently large, of metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, the same is not the case with metallurgical coal are sufficiently large, and the same is not the case with metallurgical coal are sufficiently large, and the same is not the case with metallurgical coal are sufficiently large, and the same is not the case with metallurgical coal are sufficiently large, and the same is not the case with metallurgical coal are sufficiently large. not the case with metallurgical coal. The conservation of might, lurgical coal is not a problem. lurgical coal is not a problem peculiar only to this country.

Would C. therefore, be expected that there would be technical advances which would find alternative mothers. would find alternative methods of making iron and metallurgical coal or at 1 would either eliminate the necessity for the use of metallurgical coal to a least reduce the dense. coal or at least reduce the dependence on good quality metallurgical coal to a large extent. But the coal to a large extent. But the immediate problem is of making coal most economical use of the large the making coal. most economical use of the known reserves of metallurgical that At non-essential Measures have been taken to conserve this coal by ensuring that At non-essential consumers adopt the same time. non-essential consumers adopt gradually other alternative fuels.

the same time, it has been taken to conserve this coal by ensuring the same time, it has been taken to conserve this coal by ensuring the same time, it has been taken to conserve this coal by ensuring the same time, it has been taken to conserve this coal by ensuring the same time, it has been taken to conserve this coal by ensuring the same time, it has been taken to conserve this coal by ensuring the same time. the same time, it has been recommended that metallurgical should be washed so that its ask it would be not it would be not it. it would be possible to blend it with coking coals, which otherwise cannot be used directly for matelline.

3. The major sources of coking coal are in Kargali/Bokaro to sh the coking coal are in Kargali at Kargali are sh the coking coal are in Kargali at Kargali at sh the coking coal are in Kargali at Kargali at sh the coking coal are in the coking coal are Jharia. A Government washery is being installed at Kargali area. 1.6 million washed washed at the color of th wash the coking coals which would be raised by Government used the the steel works at D. washed coal for the area. 1.6 million tons of washed coal from Kargali will be coal from Jharia and Rourkela and Rou the steel works at Rourkela and Bhilai. To augment these supplies is now exploring the steel works at Rourkela and Bhilai. coal from Jharia will also be required. The Ministry of Jharia. The steel method coals in the steel works at Rourkela and Bhilai. is now exploring the best method of washing coking coals in that area works at Durgon designed. Jharia. The steel works at Durgapur will be so designed for Durgapur works. coals in that area which would otherwise be unsuitable pur works will use It. lurgical purposes would be used after suitable blending. The site pur works will use Jharia coal which will be washed at

the steel works, blended with coal from Barakar which by itself cannot be used for steel making.

4. The steel works at Bhilai are so situated that they will exploit only the the best use of only the iron ore deposits in the area but make the best use of metallurgical coal from the Korba coal fields in Madhya Pradesh.

5. The three steel plants will require approximately 6 million tons of iron ore. The Rourkela and Bhilai plants are so located that they will be in the Rourkela and Bhilai plants are so located that plant will be or the Rourkela will be on the Rourkela plant will be on the coal fields, supplies of iron ore for the Rourkela plant will be on the coal fields, supplies of iron ore for the noundate at present man the Taldih range where investigations Reat present going on. These mines will be worked by Government. The Bhilai plant will draw its supplies from the Dalli-Rajhara range in Madhya Pradesh. These will also be worked by Communications of the control of t directly by Government. Durgapur has to obtain its supplies of iron ore from either the existing mines or from mines to be developed which are the most accesin extension either the existing mines or from mines to be developed deposits from existing ones in Gua, which are the most acces-

In the Utilisation of By-Products

Steel Works for in of coal which will be carried out at each a number of valuable the the carbonisation of coal which will be carried out at each by products like coal the production of coke, a number of valuable for the by products of the production of coal which will be comed it is proposed to an ammonia liquor and benzole will be released the production of these works facilities for the valuable distillation of these by-products and thereby obtain valuable the set up at each of industries like the chemicals of these up at each of these works of these by-products and thereby obtain valuable paints. Warnish basis of a number of industries like the modicines scents and antiseptics. dye stuffs, which form the basis of a number of industries in the basis of a number of an antiseptics.

he i At Rourkela where steel will be produced by a new process—nitro-nit by products where steel will be produced by a mean product. It is proposed to set up a fertilizer plant at this place nearly 80 000 tons of nitrogen in the shape of fertilizers. product. It is promised will be available in large quantities as a fortilizer plant at this place broduct. It is proposed to set up a fertilizer plant at this proposed to so nitrogen in the shape of fertilizers.

CHAPTER VII

RECRUITMENT AND TRAINING OF TECHNICAL PERSONNEL

One of the difficult problems which this Ministry has had to face that of technical appropriation is that of technical personnel both for construction and operation of the Steel Plants. of the Steel Plants. An assessment has been made, in consultation with the Russian and C with the Russian and German Technical Consultants, of the technical personnel required from the technical consultants, of the technical personnel required from the technical consultants, of the technical consultants, cal personnel required for the three Plants. It is estimated that below the Foreman Col. below the Foreman Category about 15,000 Technicians will be required for all the required for all the three plants together. The requirement of Supervisory Staff from T Supervisory Staff from Foreman upwards has been put at about 2,100. About 120 of the Samuel and the state of the state of the samuel and the samue 2,100. About 120 of the Supervisory Staff have to be highly qualified and experienced Engineer and experienced Engineers capable of giving higher technical directions. The task of location tions. The task of locating such a large number of qualified technical made cians in our country is in it. cians in our country is in itself a stupendous one; it has been qualified the more difficult by the first stupendous one; it has been qualification. all the more difficult by the fact that Engineers with similar qualifications are also needed not only in the private sector of the iron and steel industry, which have a supendous one, it is milar quantity and steel industry. and steel industry, which has also undertaken several schemes expansion, but also in other l expansion, but also in other heavy engineering industries and deverging in the private sector schemes expansion, but also in other heavy engineering industries and deverging industries and deverging industries and deverging installations. electrical installations, lopment works like transport, irrigation, mining and so on.

- 2. One way to solve this problem is to recruit Engineering train.

 In any train train train the standard of the standard trains to the standard train the standard trains to the standard trains the standard trains to the standard trains trains trains trains to the standard trains duates with little or no experience and to have them suitably plants for qualification coordinate the control of the control o ed. In order to coordinate the demands of the three Steel plants tralised and personnel of all and the steel plants tralised and the steel plants transfer the steel plants tralised and the steel plants transfer the steel plants tr for qualified personnel of all grades, the recruitment has been public Service Communications of the three steel Plant of tralised, and carried out in consultation with the Union Service Commission.
- 3. The bulk of the officers above the Foreman Category training be trained abroad. Stens are silities for the to be trained abroad. Steps are being taken to secure there the large Steel World will be trained abroad. facilities for them in different parts of the world where in design, mainteners A provision for the Foreman Category trainage facilities for them in different parts of the world where the design, mainteners A provision for the world where the personnel in the second that the personnel is the second that the second the world where the personnel is the second that t large Steel Works. A provision for training of key personnel in the design, maintenance and operation and plant would be plant with the plant with the large Steel Works. design, maintenance and operation of the Rourkela Plant about Engineers, who will be German C. the Agreement with the German Combine. Accordingly Rougheld Plant, have already part of the World Combine. Engineers, who will form part of the key personnel of the in entered to the decrease and operation of the Rourkela Plant about about the Rourkela Plant about the Plant, have already been recruited to the key personnel of the interest that the recruited the recruited to the recruited that the results about the recruited that the recrui Plant, have already been recruited and sent for training entered into with the Similar provider. Works in Germany. Similar provision also exists in the Agreement.

 4. For the entered into with the Soviet authorities regarding the Bhilai Cate gory, efforts
- 4. For the training of skilled workers below the Foreman the ry, efforts are being made to determine the facilities in the facilities in the facilities in the same being made to determine the facilities in the facilities in the same than the facilities in the same are being made to determine the facilities in the same are being made to determine the same are same as a same are same as a same are same as a same are same are same as a same are same are same as a same are same as a same are same are same as a same are same are same as a same are gory, efforts are being made to develop training facilities in

country. A Technical Committee has been set up to survey and to recomassess the existing training facilities in the country and to recommend suitable and the right kind and mend suitable steps for organizing training of the right kind and quality. Mannature for the Rourkela quality. Meanwhile, about 100 Trade Apprentices for the Rourkela are hein. Plant are being trained at Tatas in Jamshedpur. arrangements for the training of about 300 Apprentices at Chittaranjan Locomotive Works. Sindri Fertilizer and Jay Engineering Works have been finalised. A Technical Institute is also being constructed at Rourkela for the training of about 300 Apprentices. This Institute is expected to start functioning next year. It is hoped that by the time the training of about 300 Apprentices. that by the time the Plants go into operation, sufficient number of world skilled world a go into operation, sufficient number of the plants go into operation. trained skilled workers will be available to man them, although it would undoubtedly be necessary to have a few foreign technicians in top position at least for some initial period.

11

APPENDICES

APPENDIX I

MEMORANDUM OF AGREEMENT

BETWEEN

HINDUSTAN STEEL LIMITED

INDIEN GEMEINSCHAFT KRUPP-DEMAG G. m.b. H.

Dated, at New Delhi this 21st day of July, 1955

AN AGREEMENT made this 21st day of July One thousand nine and fifth and fifth and steel LIMITED a hundred and fifty five between HINDUSTAN STEEL LIMITED a Private and fifty five between HINDUSTAN STEEL LIMITED To State of Delhi (hereinafter and having its Registered Office in the State of Delhi (hereinafter to ae '41 one part and MESSRS. referred its Registered Office in the State of Delhi (heremanne)

Company') of the one part and MESSRS.

Company') of the one part and MESSRS. Molen to as 'the said Company') of the one part and Messate of the part of the protection of the one part and Messate of the part of the protection of the one part and Messate of the part of the protection of the one part and Messate of the part of the protection of the protection of the part of the protection of the part of the Company GERMENISCHAFT KRUPP-DEMAG G.m.b.H., a Privated to the said Company') of the one of the burg its REGISTERED Office and carrying on business and the burg in the best of Germany (hereinafter reference). at Duisburg its REGISTERED Office and carrying on business to as the said Community of the part. ted to as 'the Said Consultants') of the other part.

WHEREAS,

Let Preside the President dated the 21st day of December, 1953

WHEREAS,

Let Preside the President dated the 21st day of December, 1953

Agreement') made between (l) By an Agreement dated the 21st day of December, 1995 of India, dent of India, (Thick Principal Agreement) made between Bohlen Und the prafter referred to as 'the Principal Agreement') made between the first point of India (which expression includes the Government the first point and Herr Alfried Krupp Von Bohlen Und Halbach of India (which expression includes the business in the first part and Herr Alfried Krupp Von Bohlen on the Federal Population of Germany and Messrs. Demag India) of India (which expression includes the Government which the first part and Herr Alfried Krupp Von Bohlen Und Krupp Von Bohlen Und Demag Aktiens in the first part and Herr Alfried Krupp von the Sole proprietor of Fried Krupp, Essen, carrying on the Sole proprietor of Fried Krupp, Essen, carrying on the the first part and Herr Alfried Krupp, Essen, carrying on the the first part and Herr Alfried Krupp, Essen, carrying on the the first part and Herr Alfried Krupp, Essen, carrying on the the first part and Herr Alfried Krupp von the first part and Herr Alfried Krupp, Essen, carrying on the first part and Herr Alfried Krupp von the first part and Herr Alfried Krupp v Attiens in the Fole proprietor of Fried Krupp, Essen, and the Federal Republic of Germany and Messrs. Demag Republic of Germany and Messrs. Demag Republic of Germany of the Second and Third the Federal Republic of Germany of the Second and Third Party the Federal Republic of Germany and Marty the Federal Republic of Germany and Marty the Federal Republic Limited Company incorporations and the Second and Third it was a federal Republic of Germany of the Second and Third hetween the parties thereto that its Act, 1913, be Arts the Federal Duisburg, a Public Limited Company of the Second and Third tophopany incorporated agreed between the parties thereto that Indian Companies Act, 1913, be and operate a The respectively Republic of Germany of the second with the with a view to develop, manage and operate a thereto be Steel With a view to construct develop, manage and operate a and that the Construct develop, manage and operate a and that the construct develop. With a view to construct develop, manage and operate a succession of the construct develop, manage and operate a succession of the construct develop, manage and operate a succession of the construct develop.

The construct develop of the construc Appending of the second and Third Parties thereto be appending for the primary for the primary for the primary that the second and that an option to form a second and the primary for the primary for the primary that the second and appearing for the purpose upon the terms and conditions there-MINDUSTAN STEEL LIMITED was accordingly formed under the Indian Companies Act, 1913, on the 19th

day of January, 1954, having its Registered Office in the State of Delhi and a Private Limited Company under the name and style of Indien General American Company under the name and style of Indien Company under the Indien Company under the Indien Company under the Indien Company under the Indien Company u of Indien Gemeinschaft Krupp-Demag G.m.b.H. was also incorporated on the 16th days of the company under the name and the company under the company ed on the 16th day of March, 1954, having its Registered Office in-Duisburg in the Federal Republic of Germany.

- (3) In pursuance of the Principal Agreement the President of India representing the Government of India and the said Herr Alfried Krupp von Ball Government of India and the said Fried Alfried Krupp von Bohlen Und Halback the sole Proprietor of Fried Krupp, Essen and 35 Duisburg, Krupp, Essen and Messrs. Demag—Aktiengesselschaft, Duisburg, have transferred and messrs. Demag—Aktiengesselschaft, ohligations. have transferred and assigned their rights, duties and obligations under the said Agraement and assigned their rights, duties and consaid Cons under the said Agreement to the said Company and the said Consultants respectively.
- (4) The said Company is now desirous of installing an Iron and tons. Steel Plant to an initial production capacity of one million tons. upon the terms and condition upon the terms and conditions contained in the Principal Agreement modified as hereinafter are solutions to instance of million modified as hereinafter are solutions. modified as hereinafter appearing and contained.

NOW IT IS HEREBY AGREED AND DECLARED between the parties hereto as follows:—

- 1. The said Consultants shall make further necessary studies production production expansion of the existing Project of 500,000 tons to a production mate metal metal make further necessary studies on the existing project of 500,000 tons to a production mate metal capacity of one million tons of ingot steel per annum for the said. mate production of flat products, as may be required by Company.
- 2. The said Consultants shall submit to the Said Company within the in-detail execution of the execution of the said company setting. 3 months of the execution of these presents a complete Report setting department for the said Company with the forth in—detail all further additional work to be done in ingot steel to be condepartment for the production of the said one million tons in steel to be converted into for the said one million steel to be converted into flat products as aforesaid.
- 3. The said Consultants shall include in the aforesaid employ.

 The said Consultants shall include in the aforesaid employ.

 The said Consultants shall include in the aforesaid employ. Festilts of all investigations include in the aforesaid employ, ment of the process of steel making the suitability of the process of steel making the suitability of the the process of steel making the suitability of the the steel making the suitability of the the steel making the suitability of the steel making the steel making the suitability of the steel making the suitability of the steel making the steel making the suitability of the steel making the steel maki ment of the process of steel making commonly known as the
- 4. The said Consultants shall include in the said Report a works signed to produce the each major to the Steel Works. ment of the total cost in each major department of the Steel works designed to produce the said one designed to produce the said one million tons ingot steel.

5. Within two months of the acceptance of the Report referred to in Clause 2 hereof and subject to—mutual discussions the said

- (a) Complete technical specifications for the itemized machines and equipment as a basis for ordering these (prepara-
- (b) Consumption figures for raw materials and auxiliary materials, electric power, steam, water, etc. balance sheets of materials and power;
- (e) Cost and profit calculation for determination of the eco-

f. It shall be the responsibility of the said Company to see that aid tons capacity as aforein planning the responsibility of the said Company to see that said, the raw material modulating the supply of water and for in Said, the responsibility of the said power, the raw material resources including the supply of water and combinating resources including the supply of water and combinating resources including the supply of water and combination facilities for in power, the raw material resources including the supply of water and raw materials and the transportation facilities for in Combustibles and the transportation racing materials and outgoing goods are ensured.

Arties hereto shall have a storesaid the rights, duties and liabilities of the Parties hereto as aforesaid the rights, duties and liabilities of the altered and remain as set out in the Principal Agreethent altered and varied as under:—

- (a) In clause 4 of the Principal Agreement the words "to commence production of four years from mence production within a period of four years from the decision within a period of works" shall be the decision on within a period of four years replaced by the location of the Works" shall be replaced by the word "to commence production within a period of four years and eight months from the decision on the location of the Works",
- (b) In Clause 13 of the said Agreement, the figures "500,000" and "360,000" the said Agreement, the figures "buo,out figures "10,00,000" shall respectively be replaced by the figures "10,00,000" and "720,000",

and

principal A feet prescribed in Clause 15 of the Consultants shall receive to drawn at Principal Agreement, the said Consultants shall receive A fixed fee in D. Marks of 6.20 millions, to be drawn at in non-blocked D. Marks of 0.20 mmon.,

Government the said Company shall guarantee that the Government of India in conjunction with the Reserve Bank of India in conjunction with the Reserve Germany of India grant full facilities for the remittance to Germany of all payments due under this Agreement.

- 5. Within two months of the acceptance of the Report referred to in Clause 2 hereof and subject to—mutual discussions the said Consultants shall—submit:
 - (a) Complete technical specifications for the itemized machines and equipment as a basis for ordering these (preparation of tender papers);
 - (b) Consumption figures for raw materials and auxiliary materials, electric power, steam, water, etc. balance sheets of materials and power;
 - (c) Cost and profit calculation for determination of the economic prices of the end products.
- in planning the responsibility of the said Company to see that said, the raw material resources including the supply of water and roming raw materials and the transportation facilities for in materials and outgoing goods are ensured.
- Parties hereto shall be and remain as set out in the Principal Agreeand varied as under:—
 - (a) In clause 4 of the Principal Agreement the words "to commence production within a period of four years from the decision on the location of the Works" shall be a period of four years and eight months from the decimal on the location of the Works,
 - (b) In Clause 13 of the said Agreement, the figures "500,000" figures "10,00,000" and "720,000",
 - In addition to the fees prescribed in Clause 15 of the a fixed fee in D. Marks of 6.20 millions, to be drawn at Marks, AND the said Company shall guarantee that the Bank of India million conjunction with the Reserve to Germany of all payments due under this Agreement.

day of January, 1954, having its Registered Office in the State of Delhi and a Private Victoria Registered Office in the State of Delhi and a Private Limited Company under the name and style of Indien Gemeinschaft of Indien Gemeinschaft Krupp-Demag G.m.b.H. was also incorporated on the 16th day of 7. ed on the 16th day of March, 1954, having its Registered Office in. Duisburg in the Federal Republic of Germany.

- (3) In pursuance of the Principal Agreement the President of ia representing the G India representing the Government of India and the said Herr Alfried Krupp von Bobb. Alfried Krupp von Bohlen Und Halback the sole Proprietor of Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp von Bohlen Und Halback the sole Proprietor of Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and the sale Fried Krupp, Essen and Management of India and India a Krupp, Essen and Messrs. Demag—Aktiengesselschaft, Duisburg, have transferred and have transferred and assigned their rights, duties and obligations under the said Agreement under the said Agreement to the said Company and the said Consultants respectively sultants respectively.
- (4) The said Company is now desirous of installing an Iron tons. Steel Plant to an initial production capacity of one million tons upon the terms and condition upon the terms and conditions contained in the Principal Agreement modified as hereinafter modified as hereinafter appearing and contained.

NOW IT IS HEREBY AGREED AND DECLARED between the rties hereto as follows: parties hereto as follows:-

- 1. The said Consultants shall make further necessary studies production pansion of the existing production production expansion of the existing Project of 500,000 tons to a production capacity of one million tons of the said. capacity of one million tons of ingot steel per annum for the said Company. mate production of flat products, as may be required by
- 2. The said Consultants shall submit to the Said Company within nonths of the execution of these the in—detail all report settings. 3 months of the execution of these presents a complete Report each department for the forth all further additional to the Said Company witing a months of the execution of these presents a complete Report each department for the said Company witing the said Company witing a months of the execution of these presents a complete Report each department for the said Company witing the said Company witing the said Company setting the said Company se department for the production of the said one million tons steel to be converted into flat production. steel to be converted into flat products as aforesaid.
- 3. The said Consultants shall include in the aforesaid employint of the process including the said consultants of the process including the said employing the said consultants shall include in the aforesaid employing the said consultants shall include in the aforesaid employing the said consultants shall include in the aforesaid employing the said consultants shall include in the aforesaid employing the said consultants shall include in the aforesaid employing the said consultants shall include in the aforesaid employing the said consultants shall include in the aforesaid employing the said consultants shall include in the aforesaid employing the said consultants shall include in the aforesaid employing the said consultants shall include in the aforesaid employing the said consultants shall include in the said consultants shall be said to said the said the said consultants are said employing the said consultants and said the said results of all investigations include in the aforesaid employeement of the process of steel process. ment of the process of steel making commonly known as the
- 4. The said Consultants shall include in the said Report a Works signed to produce the each major. ment of the total cost in each major department of the Steel designed to produce the said major department of the steel. designed to produce the said one million tons ingot steel.

5. Within two months of the acceptance of the Report referred to in Clause 2 hereof and subject to—mutual discussions the said

- (a) Complete technical specifications for the itemized machines and equipment as a basis for ordering these (prepara-
- (b) Consumption figures for raw materials and auxiliary materials, electric power, steam, water, etc. balance sheets of materials and power;
- (e) Cost and profit calculation for determination of the eco-

B. It shall be the responsibility of the said Company to see that It shall be the responsibility of the said Company to see that said, the raw material modulation to the one million tons capacity as afore-Said, the sthe expansion to the one million tons capacity as alone to the combined including the supply of water and the combined including the supply of water and the supply Dower, the raw material resources including the supply of water and raw materials and the transportation facilities for in materials and the domain are ensured. Comping raw materials and outgoing goods are ensured.

Parties hereto as aforesaid the rights, duties and liabilities of the shall he and shall he are so out in the Principal Agree-Parties hereto shall be and remain as set out in the Principal Agree-

- (a) In clause 4 of the Principal Agreement the words "to commence production within a period of four years from mence production within a period of four years from works" shall be the decision on within a period of four years non-replaced by the location of the Works" shall be replaced by the word "to commence production within a period by the word "to commence production with on the location and eight months from the deci-
- (b) In Clause 13 of the works, and "360.000" the said Agreement, the figures "500,000" chall repeatively be replaced by the and "360,000" the said Agreement, the figures "500,000" shall respectively be replaced by the

In addition and Principal to the fees prescribed in Clause 15 of the Agreement the said Consultants shall receive Principal to the fees prescribed in Clause 15 or the fixed fee in D Manufactor of and millions, to be drawn at a fixed Agreement, the said Consultants shall receive their option in Marks of 6.20 millions, to be drawn at non-blocked D. their option in Marks of 6.20 millions, to be drawn at Marks, AND the millions of in non-blocked D. Marks, AND in Indian Rupees or in non-blocked D. Barrament of India in Company shall guarantee that the Company with the Reserve Government the said Company shall guarantee that the to of India in conjunction with the Reserve full facilities for the remittance Bank of India in conjunction with the Reserve due under this Agreement. to Germany of all payments due under this Agreement.

The fixed fee shall be payable in several instalments corresponding to the progress of services rendered as detailed below:-

(i) On submission of report according to Clause 2 here of . DMs. (ii) On acceptance of the said Report	1,860,000 310,000 930,000
(v) On commission of the expand of the expan	1,860,000
DMs.	1,240,000
Total DMs.	6,200,000

The above mentioned fee shall be subject to Indian Income-tax accordance with the still be subject to Indian Income-tax in accordance with the stipulations set out in the Exchange of Letters between the Production 5 between the Production Secretary, Government of India on Aktihand and Messrs. Fried Krupp, Essen and Messrs. Demag Delhi engesselschaft, Duisburg, on the other hand, dated at New letters. 11th December and 18th December, 1953 and copies of which letters. are attached hereto and marked as Annexure I.

8. In the event of the said Company not accepting—the from referred to in Clause 2 above within a period of one month terminated to be to of the submission thereof this Agreement shall be deemed to be the soil of the end of this agreement shall be deemed to be the event of the soil of the end of this agreement shall be deemed to be the event of the soil of the event o minated at the end of this Agreement shall be deemed to be to the said Company not gorious PROVIDED THAT in the event of within the event of the said Report. the said Company not communicating its rejection of the said Report the period of one relationship its rejection of the said Report thereof, any within the period of one month from the submission thereof, and PROVIDED THAT in the said Report shall be deemed to be a submission thereof, and PROVIDED that the submission thereof. Report shall be deemed to have been accepted by the said Company affected the THAT nothing the rejudice of the said to have been accepted by t and PROVIDED THAT nothing herein mentioned shall prejudice or under here affected the rights or liabilities of the parties already accrued here of terminations affected by the sale prejudice under before such termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of termination of the parties already accrued the event of the event under before such termination, and PROVIDED THAT in Agree ment shall be a sha of termination of this Agreement as aforesaid, the Principal Agree these Presents ment shall be deemed to remain unaltered and unaffected by Presents.

IN WITNESS WHEREOF the common Seal of the said Company has been hereunto affixed and the constituted Attorneys of the said Consultants have hereunto set their hands on behalf of the said Consultants the day and year first hereinabove

The Common Seal of HINDUSTAN STEEL LIMITED has been hereunto

affixed pursuant to a resolution the Board of Directors of the said Company passed on the 13th of June, 1955 in the presence of Sudhendra Nath Mozumdar, Managing Director of the said Company. Signed by Sucha Singh Khera, S. S. Khera. Chairman of the Board of Directors of HINDUSTAN STEEL LIMITED in the presence of the said P. N. P. N. Bhalla Under Secretary to the Mosumdar, Managing Director HINDUSTAN STEEL LIMITED in the presence of M. L. Mitra Signed, M. L. Mitra. Secretary. Hindustan Steel Limited. CHAFT KRUPPDEMAG G.m.b.H. by its constituted Attorneys Hans H. Seyboth. Rrishna Rau and Wolfgang K. Krishna Rau Financial Adviser.

Hindustan Steel Limited. Wolfgang Christian Rau and Wolfgang K. Krishna Rau Financial Adviser.

Japat Rum. in the presence of Hindustan Steel Limited. Wolfgang Reuter

Reuter Reuter Reuter. Indien D. J. Ram. Technical Expert, Indien

Gemeinschaft Krupp-Demag G.m.b.H.

ANNEXURE 'I'

(I) Copy of letter dated the 11th December, 1953 from Messrs.

Demag Authorities Dated the 11th December, 1953 from Krupp, DEMAG AKTIENGESELLSCHAFT, DUISBURG AND MESSRS. FRIED KRUPP,
MINIS-ESSEN TO THE SECRETARY TO THE GOVERNMENT OF INDIA, MINISTRY OF PROPERTY. TRY OF PRODUCTION.

Sir,

In regard to the payment of income-tax and super-tax (inclusive all other taxes and discome-tax and super-tax) on the of all other taxes and dues whatsoever leviable in India) consulting fee due to our Combine in regard to Technical Agreement to be signed. Agreement to be signed in New Delhi and discussed in our current talks, we would like to talks, we would like to state as follows:-

The technical Aid Agreement will be implemented by our two ns from their respective. firms from their respective domicile in Essen and Duisburg, already Germany. Services to be rendered in this connection have already been set out in detail in the connection have already on Indo been set out in detail in para. 6 of the "Memorandum on 15th German Association in the Indian Steel Project" signed in Bonn, 15th August 1953. Though according to the World of Services, world according to the Steel Project of Services, and the Steel Project of Services, world according to the Steel Project of Services, and the Steel Project of Services of Services of Services, and the Steel Project of Services o August 1953. Though according to us the major volume of services, work and activity accruing to us the major volume of services, and activity accruing to the major volume of services, and activity accruing the major volume of services, and activity accruing the major volume of the majo work and activity accruing in connection with the implementation of the Technical Aid Agreement and the work and activity accruing in connection with the implementation with of the Technical Aid Agreement will be performed in West Germany, and come to us the major volume implementary, we would set out below the we would set out below the work to be done in the two countries and comprised under the bear. and comprised under the headings A to E:-

- (A) (i) Investinating the processes best suited under prevailing conditions.
- (A) (ii) Recommending the economic location the plant after such detailed investigation as may be necessary.

(B) Preparing a preliminary study, comprising:

(i) General layout of plants.
(ii) Estimate of the investment capital required. (iii) Quantitative estimates of material and power

(C) Preparing the final project report after the preliproject will comprise

(i) The arrangement drawings of the plant and

equipment.

(ii) Complete technical specifications for the itemized machines and equipment asabasis for ordering these. (Preparation of Tender). Schedule giving the times of delivery construction and erection as well as the initial struction and erection as well as the initial operation of the new Steel PLANTS.

All work in connection herewith will be done in West of occasion with the avention of occasion with the avention of occasion of occasion with the avention of occasion with the occasion w with the exception requisite signal vieite sional visits by the requisite experts to Table experts to India.

*(I) Copy of letter dated the 11th December, 1953 from Messrs.

Demag Automatical Krupp, DEMAG AKTIENGESELLSCHAFT, DUISBURG AND MESSRS. FRIED KRUPP,

ESSEN TO TUR S-ESSEN TO THE SECRETARY TO THE GOVERNMENT OF INDIA, MINISTRY OF PROPERTY. TRY OF PRODUCTION.

Sir,

In regard to the payment of income-tax and super-tax (inclusive all other taxes and decree and decree and decree are super-tax (inclusive the all other taxes and decree are super-tax (inclusive the all other taxes and decree are super-tax (inclusive the all other taxes and decree are super-tax (inclusive the all other taxes and decree are super-tax (inclusive the all other taxes and decree are super-tax (inclusive the all other taxes and decree are super-tax (inclusive the all other taxes and decree are super-tax (inclusive the all other taxes and decree are super-tax (inclusive the all other taxes and decree are super-tax (inclusive the all other taxes and decree are super-tax). of all other taxes and dues whatsoever leviable in India) on Aid consulting fee due to an amount of income-tax and super-tax (including the theory of the consulting fee due to an amount of income-tax and super-tax (including the theory of the consulting fee due to an amount of income-tax and super-tax (including the consulting fee due to an amount of income-tax and super-tax (including the consulting fee due to an amount of income-tax and super-tax (including the consulting fee due to an amount of income-tax and super-tax (including the consulting fee due to an amount of income-tax and super-tax (including the consulting fee due to an amount of income-tax and super-tax (including the consulting fee due to an amount of income-tax and super-tax (including the consulting fee due to amount of income-tax and super-tax (including the consulting fee due to amount of income-tax and super-tax (including the consulting the consulting fee due to amount of including the consulting the consulting fee due to amount of including the consulting fee due to our Combine in regard to Technical Agreement to be signed. Agreement to be signed in New Delhi and discussed in our current talks, we would like to talks, we would like to state as follows:-

The technical Aid Agreement will be implemented by our west ms from their respective described by two firms from their respective domicile in Essen and Duisburg, Germany. Services to be Germany. Services to be rendered in this connection have already been set out in detail in been set out in detail in para. 6 of the "Memorandum on 15th German Association in the Table Angelian Bonn, 1956. 'German Association in the Indian Steel Project' signed in Bonn, and August 1953. Though according August 1953. Though according to us the major volume of services, work and activity accruing in work and activity accruing in connection with the implementation of the Technical Aid Agraement was a supplementation with the implementation with the implementation was the Treet Germany, and the implementation was the results of the Technical Aid Agraement was a supplementation with the implementation was a supplementation. of the Technical Aid Agreement will be performed in West Germany, we would set out below the we would set out below the work to be done in the two countries and comprised under the barre and comprised under the headings A to E:-

- (A) (i) Investinating the processes best suited under prevailing conditions.
- (A) (ii) Recommending the economic location of the plant after such detailed investigation as may be necessary.
- (B) Preparing a preliminary study, comprising:

(i) General layout of plants.

(ii) Estimate of the investment capital required. Quantitative estimates of material and power

(C) Preparing the final project report after the preliminary study has been approved.

(i) The arrangement drawings of the plant and (ii) Complete technical specifications for the itemized machines and equipment asabasis for

ordering these, (Preparation of Tender). (iii) Schedule giving the times of delivery construction and erection as well as the initial operation of the new Steel PLANTS.

All work in connection herewith Germany will be done in West of ocar with the exception requisite sional visits by the reperts to India. experts to India.

(iv) Summary of the total costs for the various

(v) Consumption figures for raw material and auxiliary material, electric power, steam, water, etc. balance sheets of materials and

(vi) Cost and profit calculations for the determination of the economic prices of the end

(D) Consultation and assistance in issuing the invitation to tender for machines and equipment in examining tenders and in making recommendation thereon thereon and in making recommendation thereon and in preparing the purchase and services

(E) Supervision of erection and initial operation of the

All work in connection herewith will be done in West Germany with the exception of occasionel visits by the requisite experts to India.

All work in connection herewith will be done in India, reimbursement for which will be made separately to our firm by the new Indo-Germany Company, such reimbursements being subject

Recording to our estimate, the major portion of profits for the commany. However, services to be rendered will thus accrue in West Germany. However, in has not have a find the services of India. Accordthis has not been acceptable to the Government of India. According to their views expressed during the current talks, it appears in connection with prothat since the services are to be rendered in connection with project to be services are to be rendered in connection with the Combine in the in India, the entire profits accrue or arise to the carried out in India, the entire profits accrue or arise to the combine in the combine in the combine in the combine in the carried out in India, the entire profits accrue or arise to the carried out in India, the entire profits accrue of the carried out in India, the entire profits accrue of the carried out in India, the entire profits accrue of the carried out in India. the Combine in India, and as such they are wholly taxable irrespective of the in India, and as such they are wholly taxable interposes of the Combine become resident or not for the purposes of the Indian Income-tax Act.

Law of taxation, the net profit out of the consulting fee earned by the the will be seen to a Whether the income taxed in Germany irrespective of the fact Whethor the will be taxed in Germany irrespective of the menticompany for accrues to the members of the Combine or to a specific purposes of implementation. Joint the will be taxed in Germany messes to the members of the Combine of the Combine of the Technical by them for the specific purposes of implementations of the Combine of the Technical by them for the specific purposes of implementations. menting income accrues to the members of the profits the Technical Aid Agreement. This would mean that some profits the Technical Aid Agreement. This would mean that some will be taxed in both the countries and this is bound to cause and the specific polynomial of handely between India was did, howa good will be taxed in both the countries and this is bound to causely west Germany. The when there is no agreement between India with the countries and this is bound to causely with the countries and this is bound to causely with the countries and this is bound to causely with the countries and this is bound to causely with the countries and this is bound to causely with the countries and this is bound to causely with the countries and this is bound to causely with the countries and this is bound to causely with the countries and this is bound to causely with the causely with and West of hardship when there is no agreement between in the duest proach of avoidance of double taxation. We did, however, approach our appropriate authorities in Germany with the unilate would be request for unilateral relief. This request has not been granted;

the tax authorities would be the tax authorities would be tax authorities. brepared to unilateral relief. This request has not been granted, to consider informed that the tax authorities would be considered by 50% on the provided we be that brepared, for unilateral relief. This request has not be ground to consider reducing the German taxed by 50% on the sequence of equity and the contention that Round to consider reducing the German taxed by 50% on the majorial relief. This reducing the German taxed by 50% on the majorial relief. The west Germany, and west Germany, and the halor portion of the india. Without giving up our contention that the hajor portion of this income would be carried out, we would, of India to subto take major volume of the services would be carried out, we would, the major carried out, we would, to tax only 500 carnestly request Government of India to subto tax only 50% of the net profits that will be made by the

Combine in this Technical Aid Agreement as long as the mode of services to be rendered services to be rendered is as described earlier.

- 5. It is understood that tax assessment under the Technical Aid recement will be made Agreement will be made once only, i.e., immediately after the mination of all services mination of all services in connection with the Technical Aid Agreement. For the purpose ment. For the purpose of making this assessment the net profit as certified by the German Theorem 18. certified by the German Tax Authorities will be accepted by you.
- 6. We further understand that our Combine will be considered not resident in the tayable as not resident in the taxable territories for the purpose of Indian Income-tax Act and that the Income-tax Act and that the liability to tax will be considerably smaller if this Combine is smaller if this Combine is declared as "company" under set 2(5A) (ii) of Income to a company of the consideration of the consideration of the company of the 2(5A) (ii) of Income-tax Act than what it would be if treated as an association of treated as an association of persons. We would, therefore, as that our application when were as the combine as that our application when made, for declaration of the present "company" may be favourable. "company" may be favourably considered. In this case the present rate of taxation would be a met rate of taxation would be a maximum of approximately 53% of all net profit covering all taxes. net profit covering all taxes plus super-tax (and inclusive other taxes and dues whatever other taxes and dues whatsoever leviable on income in India).
- 7. We would appreciate your confirmation that our above requests ll be acceptable to the Government with the confirmation that our are in agree on the confirmation that our are in agree of the confirmation that our are in agree on the confirmation that our are in agree of the confi .. we would appreciate your confirmation that our above requestive will be acceptable to the Government and that you are in agreement with the Combine on 41

Yours faithfully, FRIED KRUPP DEMAG A.G. (Sd)-H. SEYBOTH, (Sd)-DR. W. THUN.

SECRETARY TO THE GOVERNMENT OF INDIA, MINISTRY OF AND TION TO MESSRS. DEMAG ATTEMPT OF THE GOVERNMENT OF INDIA, MINISTRY DUISBURG, MESSRS. FROM DUISBURG, DUISBURG, MESSRS. FROM DUISBURG, DUISBURG, MESSRS. FROM DUISBURG, DUISBURG, MESSRS. FROM DUISBURG, (2) Copy of a letter, dated the 18th December, 1953, FROM.

Secretary to the Course TIPE

1953, FRODUL

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GENTLEMEN,

Please refer to your letter dated the 11th December, 1953, of the day Mr. H. Seyboth and Dr. W. Please refer to your letter dated the 11th December, 1953, of the sed by Mr. H. Seyboth and Dr. W. Thun to me on behalf Combine.

While in

While in substance most of the requests contained in the letter are acceptable to the Government of India, I have certain points clear.

A reference has been made in the first paragraph to "all other taxes and dues whatsoever leviable in India". The correct position is that at present the only taxes on income leviable in India are income-tax and super-tax. It may be appreciated that the Government of India cannot bind itself now not to subject to tax the income of the C of the Combine when a new tax is generally imposed at some future date

After discussion, we agree that, if you actually render services the tarrell render services in the taxable territories in the manner indicated in your letter, we Would regard 50% of your total net profits as being liable to tax and, there and, therefore, subject to Indian income-tax. Under the Indian Law, tax is be deducted at Law, tax, if any, due from the non-residents has to be deducted at the source. As the source before any sum chargeable to tax is paid to them. As an interior an interim measure, we would agree that, for this purpose, 12½% net the gross. Naturally, of the gross receipts may be assumed to be the profit. Naturally, the position the position will have to be reconsidered in case a greater position of the service. of the services is ultimately found to have been rendered in India.

As regards the request that "tax assessment under the Technical Aid Agreement will be made once only, i.e., immediately after the Amination of will be made once only, i.e., immediately after the termination of all services in connection with the Technical Aid agreement. Agreement", it has to be pointed out that according to the previous of the Indian Income Tax Act, the total income of each previous year is to be assessed separately and for the appropriate assessment year. Further the Act itself provides that where certain income dad seable to the Act itself provides that where certain income dad seable to the Act itself provides that where certain income dad seable to the Act itself provides that where certain income dad seable to the Act itself provides that where certain income chargeable to tax is being paid to a non-resident person, tax is to be be calculated at some paid to a non-resident person, tax is to be calculated at some paid to a non-resident person, tax is to be calculated at some paid to a non-resident person, tax is to be calculated at some paid to a non-resident person, tax is to be calculated at some paid to a non-resident person, tax is to be calculated at some paid to a non-resident person, tax is to be calculated at some paid to a non-resident person at a deducted at source, according to certain standard rates or as may each the time of payment of be estimated, where necessary. Hence at the time of payment of the proposed Agreement, each instalment as mentioned in para 15 of the proposed Agreement, come of the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement, and the instalment as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the proposed Agreement as mentioned in para 15 of the para 61% instalment as mentioned in para 15 of the proposed Agreement of the instalment amount will be deducted on account of income-tax and super-tax and will be paid to the Government of India.

Shall ing to the installment amount will be paid to the Government of India. According to the provisions of the Indian Income Tax Act, credit ment given for the provisions of the time of each assessment. shall be given, for the amount so paid, at the time of each assessestim. It may be amount so paid, at the time of each assessestim. ment. It may be appreciated that this deduction is being made on basis. It has finally determined only, estimated hasis and the liability will be finally determined only, with suggest and the liability will services in connection with the Technical Technic With Suggest, after the liability will be many partment Technical Aid Agreement. Further, the Income Tax December 1 will have the profits partinent Technical Aid Agreement. Further, the Income Tax certified by the Commally no objection to accept the net profits and Balance right to by the German Tax Authorities, but it will reserve its call for D are a Account statement and Balance right to by the German Tax Authorities, but it will reserve to call for Profit and Loss Account statement and Balance certified and Loss Accountants, if found neces-Sheet to call for Profit and Loss Account statement and Balancertified by your Chartered Accountants, if found neces-

be The last instalment due to you under the Agreement will he final tax assessment has been settled and the

balance of the tax due, if any, will be deducted from this instalment. In case however ment. In case, however, excess deductions have already been made, the refund due to war. the refund due to you will be paid at the same time.

As to your request that the application, when made by the mbine for heing day Combine for being declared as "Company" under the provisions of the Indian Income of the Indian Income Tax Act, I assure you that it will receive favourable consideration favourable consideration notwithstanding that such a declaration would reduce to liability would reduce tax liability that would otherwise be incurred if the Combine were to be traced. Combine were to be treated as an association of persons.

Yours faithfully,

Signed

A. K. CHANDA, Secy. to the Government of India.

APPENDIX II

NAHAN FOUNDRY LIMITED NAHAN

ANNUAL REPORT-1954-55

DIRECTORS' REPORT

The Directors have pleasure in submitting the annual report together With the Profit and Loss Account and the Balance Sheet for the period ending 31st March, 1955.

During the period under review further efforts for developing Were made multiple mu Were made. The development of new implements and manufacture of items, required by Government Departments were also seriously taken up with a view to find out new resources of income. The which test business to find out new resources of income. The restricted with a view to find out new resources of income.

Which the Foundaries of only one item, namely, cane crushers, on the past, has been facing which the Foundry mainly depended in the past, has been facing depended in the past, has been facing the urgency of factor in the market from private sector and hence the urgency of finding out new sources of income. In regard to the hew implements, Super Sarovar Bullockdriven water pump was the new implements, Super Sarovar Bullockdriven water pump were followed to prove a lucrative business Company were focussed, as it is bound to prove a lucrative business it is devolved, as it is bound to prove a lucrative business.

Unfortunately, however, the labour troubles directed satisfactorily. Unfortunately, however, the labour as it is developed, as it is bound to prove a labour troubles directed against the General Manager, who was against the General Manager, who was also the Engineer-in-Chief, considerably retarded progress in

Railway important orders for the manufacture of Anchor plates in the stand of the manufacture of Anchor plates items of control orders of Railway and Posts and of the year Two important orders for the manufacture of Anchor plates for land Saddles for the manufacture of Anchor plates for manufacture of Anchor plates for land saddles for and land saddles for land sad Recurred and Saddles for the manufacture of the degraph Department were and towards the end of the year from the degraph Department were and towards the end of the year from the Telegraph Departments orders of Railway and Posts and The John Little Were started towards the end of the year attention had both report. It was a new experiment and a deviation from the working working the working the working the regult that special attention had to be routine was a new experiment and a deviation from the burn on for devicing with the result that special attention had device the devicing of the methods of manufacturing these riving be given for working, with the result that special attention manager in the second manufacturing these scale against scale against some initial expenses for the second manufacturing these some initial expenses for the second manufacturing these started giving by on for devising efficient methods of manuacular manufacture of these contract items started giving which would further he improved on future orders. results which would further be improved on future orders. which would further be improved on rummanufacture of these comments which would further be improved on rummanufactured overhead expenses, e.g., carriage of raw material would further be mind the work overhead expenses, e.g., carriage of raw material goods between Nahan and railhead, interest on

The Profit and Loss Account shows a loss of Rs. 94,713/9/2.

We have further capitalized a sum of Rs. 65,359/-/6 as expenses development of new management and sum of Rs. 65,359/-/6 as expenses. for development of new manufactures, i.e., Sarovar, Anchor plates and Saddles etc. and a provided as a sum of Rs. 65,359/-/6 as expenses for development of new manufactures, i.e., Sarovar, Anchor plates and Saddles etc. and a provided as a sum of Rs. 65,359/-/6 as expenses for development of new manufactures, i.e., Sarovar, Anchor plates and Saddles etc. and a provided as the same of Rs. 65,359/-/6 as expenses for development of new manufactures, i.e., Sarovar, Anchor plates and Saddles etc. and a provided same of Rs. 65,359/-/6 as expenses as the same of Rs. 65,359/-/6 as expenses and Saddles etc. and a provided same of Rs. 65,359/-/6 as expenses as the same of Rs. 65,359/-/6 as expenses as t and Saddles etc. and a provision of Rs. 27,274/9/6 @ 2% of gross revenues has been added to the "" revenues has been added to the "Research and Development Fund" which now totals Rs. 48 055 /15 /2 which now totals Rs. 48,055/15/6. This fund was started last year and is designed to finance the and is designed to finance the expenses on development of manufacture.

Our sales, compared with those of last year, have improved to me extent, and income under "Treased". some extent, and income under "Hiring of mills and Pans" has increased appreciably as detailed.

ereased appreciably a	s detailed	Hereumas	1754 10
			From 1-4-54 to
		From 1-4-53 to	A. P.
		31-3-54	Rs. 6
		Rs. A.	6,5 ⁶ ,9 ⁷ 8 ³
Total Sales	• • •	6,00,183 3	0 7.37,858
Hiring of mills and Pans		4,41,574 4	o apprecia-
			noit of re

tion of the valuable services rendered by the Company's officers the employees at all levels. There on the valuable services rendered by the Company's officers the employees at all levels. They are particularly grateful Ministries of Production, Railway Transfer and Industries of Production and Industries of Production Railway Transfer and Industries and Ministries of Production, Railway, Finance, Commerce and Supply, Comptroller and Communications, Labour, Law, Works, Housing and Supply Comptroller and Auditor General Punjab and his at the several and supply and his at the several comparison of Production Railway, Finance, Commerce and Supply Comptroller and Auditor General Punjab and his at the several comparison of Production Railway, Finance, Commerce and Supply Comptroller and Auditor General Punjab and his at the several comparison of Production, Railway, Finance, Commerce and Industries and Supply Comptroller and Auditor General Punjab and his at the several comptroller and Punjab and his at the several comptroller and Auditor General Punjab and his at the several comptroller and Punjab and his at the several comptroller and Punjab and his at the several comptroller and Punjab and P Comptroller and Auditor General and the Accountant Punjab and his staff

(Sd.)—U. L. Goswami.

(Sd.)—FATEH SINGH.

(Sd.)—G. S. SINGH.

(Sd.)—N. C. MALLIK. (Sd.)—H. B. BHAR.

(Sd.)—P. K. CHAKRAVARTI.

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(ii) (iii)		By expenses on development of the Manufactures By transfer to Agencies Hiring stock	By Stock sent on consignment	By work in Progress By closing stock .	By stock found excess in agencies	Pay cost of realised		By gross Profit B. D.	By hir	By Fi	BY N
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To Statishery & Printing Charges .	8,380 10 0 By Rent realised	3,892 IÒ Ò
To Journals & Publications	562 8 6 By interest received	2,444 15 0
To Postage & Telegrams	2,416 10 0 By Profit of Power House .	τ3,784 8 O
	By Profit of Printing Press .	88 o 6
To Carriage and Cartage	21,865 12 0	
To Subsidy on Foodgrains	14,368 4 9	
To Repair and Maintenance:		
	9 3	33
To Rent, Rates and Taxes	11,713 12 6	∞
To Medical Aid	7,906 I O	
To Advertisement charges	20,402 14 6	
	6,19,343 0 6	9.06.09.0
	43-53545	8,96,585 14 4
To Legal Charges	1,350 0 0 To loss C/O to Balance Sheet	
To Uniforms	405 10 9	94,713 9 2
To Unforeseen Expenses	423 12 0	
To Bank charges	425 IZ 6	
To Bleanle charges	6,000 0 0	
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To Provident Fund contribution .	Profit and Loss Account—contd. 21,498 8 0	
To Pensions	372 0 0	
To Gratuity	9,000 0 0	
To Telephone charges .	1,052 5 O	
To Employees' State Insurance	2,941 2 0	
To General Expenses .	882 3 9	
To Foundry club expenses .	480 o o	
To Immerest paid on securities	1,316 4 3	
To Interest on loan payable to Government of India 3.50,000) at the rate of		
Exhibition Change	16,620 15 0	tu
To Correspond Compensation	5,123 15 6	39
To Compensation .	26 9 6	
To Corned Assets & Stores .	17 7 0	
To Directo s' Fee and T. A.	1,255 14 0	
To Audit P	10,495 0 0	
To Depreciation Suspense (On Building constructed account of which not received from		
P. W. D.	4,309 0 0	
To Depraciation		
(a) On Asse 46,031 8 o		

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7. 4.	Profit and Loss	Account—contd.			
		By Rent realised	•	3,892 10 0	
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The state of the s	21,865 12 0				
To Carriage and Cartage	14,368 4 9				
To Subsidy on Foodgrains To Repair and Maintenance:	- 155				
(i) Building) 3				38
To Rent, Rates and Taxes	11,713 12 6				
To Medical Aid	7,906 I O				
To Advertisement charges	20,402 14 6				
	6,19,343 0 6		8:	96,585 14 4	
					
To Legal Charges	1,350 0 0	To loss C/O to Balance Sheet	•	94,713 9 2	
To Uniforms	405 10 9				
To Unioreseen Expenses	423 I2 O				
To Bank charges	, 475 II 6				
To Electric charges	о осогд	0			
					
to Provident Fund contribution		Loss Account—contd.			
To Pensions	21,498 . 372 0				
To Gratuity	9,000 0				
To Telephone charges	1,052 5 0				
To Employees' State Insurance	2,941 2 0				
To General Expenses	882 3 9				
To Foundry club expenses	480 0 0				
To Interest paid on securities	·				
	1,316 4 3				
Government of India (Rs. 3,50,000) at the rate of	16,620 15 0				
4½ per cent. To Exhibition Charges	_				39
To Workmen Compensation	5,123 15 6				
Fo Condemned Assets & Stores .	26 9 6 17 7 0				
To Directors' Fee and T. A.	1,255 14 0				
To Audit Fee	10,495 0 0				
To Depreciation Suspense (On Buildings constructed account of which not received from P. W. D.)	10,495 0 0				
To Depreciation:	4,309 0 0				
(a) On Assets other than Hiring Stock 46,031 8 0					

Profit and Loss Account—contd.

•			
(b) On Hir- ing stock 2,13,430 6 0			
Less con- demned			
Stock written off		•	•
Subject to sale off 1,64,737 4 3 48,693 I	9 94,724	9	9
Scrap.	1,64,737	4	3
To Condemned as above	1,173	9	3
To Loss of canteen • • •			
To Provision for Research & De-	27,274	9	6
velopment Fund	9,91,299	7	6
GRAND TOTAL •	7:7-1-77		

9,91,299 7 6

(SOM DATT),
Accountant.

(RAM CHAND),

General Manager.

NAHAN FOUNDRY LIMITED, NAHAN BALANCE SHEET AS AT 31ST MARCH, 1955.

GRAND TOTAL

					Property and Assets.
Capital an	nd Liabiliti	es.			FIXED CAPITAL EXPENDITURE—
CAPITAL— "Authorised Capital": 10,000 shares of Rs. 1,000 each	100,00,00	0 0	0		(i) Foundry (As per Schedule annexed)
Issued and Subscribed Capital: 4000 shares of Rs. 1000 each (i) Shares issued as fully paid up in pursuant to any contract without payments					(iv) Printing Press
being received in cash 4000 shares of Rs. 1000 each			40,00,000	0	Manufacture—Temporarily Capi-
(ii) Shares issued for payment in cash nil shares of Rs. nil each	••				talized: As per last Balance sheet 1,95,199 11 6 Addition during the year
2. RESERVES— As per last balance sheet Less.—Debentures stating the nature of security Any sinking Fund	••		4,00,000		STORES AND SPARE PARTS— At Nahan Foundry 3,90,924 3 4 At Power House
3. OTHER FUNDS—					PROVISION STORES AT COST— LOOSE TOOLS: 4,172 0 3
	21,292 6	0			Previous total cost 1,00,677 4 6 Additions 5,667 13 6
As per last Balance sheet . Add for Current year	27,274 9	6			Total 1,06,345 2 0 Less Deductions
Less paid	48,566 15	6	_		1,06,309 12 9
			48,055	15 (Less Depreciation at the rate of 15 per cent. upto 31st March 1954 69,641 4 6

Balance	Sheet—contd.	
Duluille	Dibee Commu.	

•	salunce sheet	-conta.	•			
(ii) Labour Welfare Fund: Previous Balance Adjustment during the year.	17,861 12 2		From 1st April 1954 to 31st March 1955	5,500 4 o		
Less—Paid for Radio Service 317 13 9 Expenses of Adult	17,880 9 5		LIVESTOCK AND (a) Lorries and Truc (i) Previous cost.		- 75,141 8 6 - 73,766 5 0	31,168 4 3
School 218 14 0			Less Disposed of		20,436 0 0	
Relief to Employees 462 0 0 Stipends paid . 320 0 6	1,318 12 3	16,561 13 2	Less Depreciation upto 31st		653,330 5 0	
(iii) Gratuity Fund: Previous Balance	31,321 1 0	10,501 15 2	March 1954 Less adjusted	56,977 5 0 16,425 0 0		
Less.—Amount paid	5,946 0 9		Add Domesaistics	40,552 5 0		
Add Transfer from D. Co.	25,375 0 3		Add.—Depreciation from 1st April 1954 to 31st March			1
Add.—Transfer from Profit and Loss account	9,000 0 0	34,375 0 3	1955 at the rate of 25 per cent.	3,194 7 0	43,746 12 o	9,583 9 o
ESERVE FOR BAD AND			(b) Thela with Pneum	letic Tares		9,303 9 0
DOUBTFUL DEBTS.—			Previous total cost	· · · ·	678 o o	
(i) Foundry . 9,554 13 0 Less adjusted 5 12 0			Less.—Depreciation at the rate of 20 per cent upto 31st		, -	
(ii) Power House	9,549 I 0 171 I5 6		March 1954 From 1st Arpil 195	598 3 0		
		- 9,721 0 6	to 31st March 1955	15 15 0		
LOANS.—Secured from Govern ment of India			•		614 2 0	62.74.0
nient of mona Add.—Interest payable at the rate of 4½ per cent.	. 3,50,000 0 .e . 25,312 8		STOCK IN TRA As certified by G (a) Foundry	eneral Manages	:	63 14 0
•		3,75,312 5	(a) Foundry (b) Canteen (c) Printing Pre	178 5 277 0	9 6 7,97,320 7 6	6
						

SECURITY DEPOSITE (a) Foundry (b) Power House	I,47,571 7 4 (ii) Consignment stock (at cost as certified by General Manager) 66,669 (iii) Work in Progress (at cost as				
LIABILITIES: (a) For Goods supplied— (i) Foundry. (ii) Canteen.	(i) Hiring stock at cost: Total previous cost	6 4	9,59,62	5 13	O
 (b) For expenses (c) For acceptance (due to agents and sub-agents) (d) Audit Fee (e) For other Finance 	2,26,400 14 5 Less.—Deductions & Transfers 3,03,594 13 6 3,24,512 7 4 Less.—Depreciation upto 31st March 1954 4,27,804 2 10 For this year	<u>-</u>			
(f) For Provident Fund Contribution (g) Advance from Customers— Foundry	52,878 6 0 Missing Mills as per last Balance Sheet ADJUSTMENT DUE TO RE- VALUATION OF STOCK:		3,015 3,894		U
EPRECIATION SUSPENSE— (i) Foundry: Opening Balance 28,920 0 0 Additions 4,309 0 0 (ii) Power House:	BOOK DEBTS: (a) P. W. D Nahan (b) Himachal Rosin & Turpentine Factory, Nahan (c) Sirmur Tea Estate, Dehra Dun (d) Factory Nahan (d) Factory Nahan (e) Sirmur Tea Estate, Dehra Dun (f) Sirmur Tea Estate, Dehra Dun (g) Sirmur Tea Estate, Dehra Dun	1,78,	,173	5	
Opening Balance 11,474 8 0 Additions . 1,676 4 6	(a) Sirmur Stationery & Printing Press (Successors H. P. Govern- ment Press) (b) Trade Debtors (c) Trade Debtors (d) Sirmur Stationery & Printing Press (Successors H. P. Govern- ment Press) (e) Trade Debtors (f) Due from Agents & Sub-agents etc. (g) Due from Agents in 12,502 I 4				
	agencies				

		•	(i) Canteen customers	9 0 0	21,914 13 I
			CLAIMS IN DISPUTE: E. P. T. Deposit. Claims with Railway Machinery & Stock at Lyallpur.	39,506 0 0 107 I 6 7,459 2 II	7,072 4 5
<i>C. O.</i> .	54,86,207	5 0	_	50,	60,114 12 3
			-		
Liabilities and Capital '			Property and Asset Brought Forward .		60,114 12 3
Brought Forward .	54,86,207	5 0	-	3 .3	
			Advances:		
			(a) To Employees:—		4
			(i) Against Pay . 791 5 6 (ii) Against T. A. 4,172 4 9 (iii) Against purchases— (a) Foundry . 128 5 0 (b) Canteen 151 11 0 (iv) Loan to Employees 793 0 0 (v) Compensation . 80 0 0 (vi) Challan of		
			Foundry Truck 173 0 0	6,289 10 9	
			(b) Advances to Suppliers(c) Advances against commission to	11,970 12 0	
			agents	69,818 8 3	88,078 15 0
			Deposits:		
			(a) Foundry 3,698 0 (b) Agencies 1,333 0	0	
			(b) rightered	5,031 0 0	,
•					
		- COMPANION CO			
•			Propaid Expanses		1,353 0 0
			Investments:		
			3 Per cent Victory Loan at cost	_	
			P. N. B. Ltd., Fixed Account N. S. C. (Against Employees Provi-	•:•	
			dent Fund) • • • • -	26,185 0 0	27,185 0 0
			C. J. in Hand and other Palameter		
•			Cash in Hand and other Balances:	4020 0 0	
			Cash in hand at Nahan	4,929 9 9 68,902 12 11	
			Cash in Transit	8,150 0 0	
			With Bankers on Current Account—	70.224.2.2	45
			Nahan	79,334 ² 3 717 14 3	6
			Imprest —	7-7 -4 3	
			Head Office 74 7 9		
			Agencies 59 12 6	134 4 3 1	,62,168 11 5
			Profit and Loss—	. — -	
			Last Balance (loss) Loss this year	47,562 5 2 94,713 9 2 1	,42,275 14 4
	54,86,20	37 ~	^		,86,207 5 o

SOM DATT,
Accountant.

RAM CHAND, General Manager.

NAHAN FOUNDRY LIMITED, NAHAN. FIXED CAPITAL EXPENDITURE ON 31ST MARCH, 1955.

Depreciation Balaace Total Assets From 1st April 1954 to 31st March 1955 Rate Total Deductions Cost as on and 31st March 1955 Upto 31st March cost on Additions Total 31-3-1954 1954 **Transfers** Per cent. 40,081 1 9 95,327 15 0 1,50,067 40,081 1 9 40,081 1 9 Buildings Mon-Pactory 40,081 1 9 87,429 II Q 49,859 53 · 2,38,477 I2 9 2,45,394 15 0 10 1,96,511 8 9 3,42,626 9 9 Plant & Machinery . . 4,647 5 0 6,917 2 3 2,45,394 15 0 45,212 8 3 ²,31,078 o 0 15,847 6 0 2,31,104 14 26 14 0 2,31,104 14 0 6 1,80,672 Q 3 for 7 13 6 3,39,138 2 6 Less adjusted for machinery · 3,29,318 12 3 8,819 6 3 3,39,138 2 6 33,073 14 9 1,80,664 2 9 17,911 13 0 4e & Pixture Type writers 1,317 12 3 2,111 2 0 written off. 15,800 11 0 617 I 3 50,108 ₂ 0 50,985 11 9 50,987 6 0 I IO 3 16,113 14 9 4,685 10 6 4,685 10 1,023 9 3 4,685 10 941 1 0 1,709 3 6 1,709 3 12,137 12 11 1,709 3 6 21,906 15 6 70 ¹³ 29,229 11 11 30,042 2 812 6 9 135 15 0 30,042 2 8 . . 560 6 3 1,426 II O 5 1,455 8 11 12,382 28 10 1,455 5 0 0 ^{28,02}1 7 9 36,723 8 9 2 6 5 561 35 2 0 36,723 9 5 101 15 0 726 8 ₃ 696 5 3 Less adjusted for 741 12 3 45 7 526 6 3 3,313 3 0 item written off. 1,924 567 9 0 3,095 15 9 502 o o 759 4 ⁹ 502 0 1,556 189 3 1,246 5 502 0 3,266 I O 12,077 II O 4,719 II o 5,237 11 518 o 4,03,823 9 4 6,04,936 1 6 5,237 II O 3,663 8 9 993 3 3,663 8 1,341 15 3,663 8 ^{2,005} 9 9 2,005 9 37,320 14 0 1,924 2,005 9 10,08,769 10 10 3,66,545 11 4 6,000 o o RAM CHAND, General Manager.. 9,343 I2 O 15,343 12 0 9,71,753 14 10 37,062 13 3 10,08,816 12 1 47 1 3 3,66,502 11 4

> SOM DATT, Accountant.

R. L. CHOPRA,

Assistant Examiner,
Outside Audit Department.

General,

G. H. PO. Saw,

as at 31st March, 1955 Sharekolden Auditors to the of the

and also the

We have audited the above Balance Sheet of the Nahan Foundry Ltd., Nahan, year ended upon that date and report that :--

we have required. (a) We have obtained all the information and explanations

Company's affairs (b) In our opinion the above Balance Sheet and the Profit & Loss account are drawn up in conformity with

(d) And in our opinion books of account have been kept by the Company as required by Section 130 of the Indian Companies Act. (c) Subject to the enclosed audit comments, the Balance Sheet exhibits a true and correct view of state of the best of our information and the explanation given to us and as shown by the books of the Company at Nahan.

C. D. SAKLANT,

MR 4 M, of I. & S.—19-3-56 3,000

Auditors to the Shareholders.

We have audited the above Balance Sheet of the Nahan Foundry Ltd., Nahan, as at 31st March, 1955 and also the Profit and the year ended upon that date and report that :—

(a) We have obtained all the information and explanations we have required.
(b) In our opinion the above Balance Sheet and the Profit & Loss account are drawn up in conformity with Law.

(c) Subject to the enclosed audit comments, the Balance Sheet exhibits a true and correct view of state of Company's affairs according the best of our information and the explanation given to us and as shown by the books of the Company at Nahan.

(d) And in our opinion books of account have been kept by the Company as required by Section 130 of the Indian Companies Act.

C. D. SAKLANT, Examiner.

G. H. PO. SAW, Accountant General, Punjab.

NAHAN FOUNDRY LIMITED, NAHAN.

FIXED CAPITAL EXPENDITURE ON 31ST MARCH, 1955.

Relation of the cost of the co						31st March 1955	Depreciation			
Apply 40,081 I 9	3ets	Total cost on 31-3-1954	Additions	Total	and		31st March	1954 to 31st	Rate	otal Balance
3.49/47/12 9 6.917 2 3 2,45,394 15 0 2,45,495 13 3 1,845,245 0 2,45,495 13 3 1,845,245 0 2,45,495 13 3 1,845,245 0 2,45,495 13 3 1,845,245 0 2,45,495 13 3 1,845,245 0 2,45,495 11 0 2								Per	r cent.	
3.49/47/12 9 6.917 2 3 2,45,394 15 0 2,45,495 13 3 1,845,245 0 2,45,495 13 3 1,845,245 0 2,45,495 13 3 1,845,245 0 2,45,495 13 3 1,845,245 0 2,45,495 13 3 1,845,245 0 2,45,495 11 0 2	actory	· 40,081 1 9	• •	40,081 1	9	40,081 I 9	• •		•	
Sample S	n-Factor	· 2,38,477 12 9	6,917 2	-		2,45,394 15 0	87,429 11 0			432000
Fixture So, 108 2 0 879 4 0 50,987 6 0 1 10 3 50,987 11 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 1,092 2 3 6617 1 3 1,092 3 1 1,092 3 1 1 1,092 3 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1,092 3 1 1 1	hinero				_		45,212 8 3	4)947		3 -301,245 0
Firthere is 50,108 2 0 879 4 0 50,987 6 0 1 10 3 50,985 11 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 2,111 2 0 6 17,911 13 0 33,073 14 9 15,800 11 0 1,709 3 6 1,709 3 6 1,709 3 6 1,023 9 3 68 9 0 10 1,092 2 3 677 1 3 10,800 11 0 29,229 11 11 812 6 9 30,042 2 8 30,042 2 8 12,137 12 11 1,709 7 0 10 13,928 3 11 16,131 14 9 10 1,426 11 0 28 10 0 1,455 5 0 1,455 5 0 443 7 0 70 13 0 7 514 4 0 941 1 0 14,816 9 11 21,906 15 6 1,440 11			•			2 20.128 2 6	1,80,672 0 3 7 13 6	ודייננג	10 1,96,511	8 9 1,42,626 9
Thinking Solution Sol	_					machinery	1,80,664 2 9			
1. 1,709 3 6	Pixture .					written off.			6 17,911 1	3 0 33,073 r ₄ 0
1, 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 .	•	. 20,108 2 0	879 4	0 50,987 6	o 1 10 3	50,985 11 9		2,222	15 3,367 I	
1, 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 3 6 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 1,709 7 0 10 13,928 3 11 10,113 14 9 .	^{nstallation} .	4,685 10 6	••		6	4,685 10 6	3,135 5 3	_	10 1,092	
29,229 II II 812 6 9 30,042 2 8 30,042 2 8 12,137 12 II 17,750 7 1,426 II 0 28 IO 0 1,455 5 0 1,455 5 0 443 7 0 70 I3 0 7 514 4 0 941 I 0 10 14,816 9 II 21,906 15 6 10 10 10 10 10 10 10 10 10 10 10 10 10	σg ₈ .	· 1,709 3 6			6	1,709 3 6		 0	10 13,928	3 II 16,II3 14 ₉
Indicates 1,426 11 0 28 10 0 1,455 5 0 1,455 5 0 443 7 0 70 13 0 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 14,816 9 11 21,906 15 6 10 10 10 10 10 10 10 10 10 10 10 10 10	•	. 29,229 11 11	_		0	30,042 2 8	12,137 12 11	23/2	7 514	4 0 94 ¹ 1 0
The set at agencies of the set of		· 1,426 11 0		•			443 7 0	- 4	•	9 11 21,906 15 6
The set at agencies of the set of	truments		0				12,382 8 11	23434	-60	
Applifier set . 4,719 11 0 518 0 0 5,237 11 0 5,237 11 0 1,556 6 0 368 2 0 10 1,924 8 0 3,313 3 0 8 8 9 3,663 8 9 3,663 8 9 2,906 12 9 189 3 0 25 3,095 15 9 567 9 0 180 8 9 9 993 3 0 25 3,095 15 9 567 9 0 180 9 9 9 993 3 0 25 3,095 15 9 567 9 0 180 9 9 9 993 3 0 25 3,095 15 9 567 9 0 180 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	•			,	_	- 606 5 3	561 8	<u>.</u>		
Applifier set . 4,719 11 0 518 0 0 5,237 11 0 5,237 11 0 1,556 6 0 368 2 0 10 1,924 8 0 3,313 3 0 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	1e.	3	15 4	0 741 12	3 45 7	T are adjusted fo	or 33			
Applifier set . 4,719 11 0 518 0 0 5,237 11 0 5,237 11 0 1,556 6 0 368 2 0 10 1,924 8 0 3,313 3 0 8 8 9 3,663 8 9 3,663 8 9 2,906 12 9 189 3 0 25 3,095 15 9 567 9 0 180 8 9 9 993 3 0 25 3,095 15 9 567 9 0 180 9 9 9 993 3 0 25 3,095 15 9 567 9 0 180 9 9 9 993 3 0 25 3,095 15 9 567 9 0 180 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	enoitions					Heim Witten date	526		25 400	1 0 101 15 0
Solving 3,663 8 9 3,663 8 9 3,663 8 9 2,906 12 9 189 3 0 25 3,095 15 9 567 9 0 180 80 80 80 80 80 80 80 80 80 80 80 80 8	nn agenci	. 502 0 0				403. 0. 0	366 I O		- 004	0
3,663 8 9 3,663 8 9 3,663 8 9 2,906 12 9 2,005 9 9 2,005 9 9 2,005 9 9 993 3 0 253 2 0 25 1,246 5 0 759 4 9 2,000 0 0 9,343 12 0 15,343 12 0 15,343 12 0 15,343 12 0 15,343 12 0 15,343 12 0 15,343 12 0 15,343 12 0 15,343 12 0 17,924 2 0 1,341 15 0 10 3,266 1 0 12,077 11 9,71,753 14 10 37,062 13 3 10,08,816 12 1 47 1 3 10,08,769 10 10 3,66,545 11 4 37,320 14 0 4,03,823 9 4 6,04,936 1	Plifier set	4.719 11	• •	_	0		6 0	368 2 0	_	- 3325 5 0
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	Bo Cies	3,662 0	518 0	0 5,237 11	0		-C T2 9	189 5		5-1 9 0
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	res .	2,000	••	3,663 8	9		2 0	253 2 0		100 1
$9,71,753 \text{ 14 to } 9,343 \text{ 12 o} 15,343 \text{ 12 o} \dots 15,343 1$. •	, 6,000 -	•			_	T.024 2 0	1,341 15 0	10 3,266	I 0 12,077 II
3,66,502 11 4		9,71,750	9,343 12	0 15,343 12	o	15,343 12 0	2,56,545 II 4	37,320 14 0		
3,66,502 11 4		-7-3/53 I4 IO	37,062 13	3 10,08,816 12	I 47 I	3 10,08,769 10 10	43 0) -		••••
						_	3,66,502 11	4		

SOM DATT,
Accountant.

R. L. CHOPRA,

Assistant Examiner,

Outside Audit Department.

What w. of 1. & S.—19-3-56 3,000

RAM CHAND, General Manager..

GOVERNMENT OF INDIA

Ministry of Iron & Steel

SUMMARY 1955-56

The Ministry of Iron & Steel was created by a Presidential Order ated the 28th and Iron & Steel was created by a Presidential Order dated the 28th of May 1955 and the following subject allotted to it:

- (a) Government industrial undertakings for the production
- (b) Government-owned foundries.

2. Steel is basic to industrialisation. But the production of steel Within the country has always been much less than the demand. This deficiency has always been much less than the demanding the last year of markedly evident during the last year of the la the First Plan period. Rapid development in all fields, particularly which is the state of in industry, became markedly evident danished be thought is envisaged in the Second Five Year Plan, canthe thought of except on the basis of steel. The key-note of Shring policy, which is envisaged in the Second Five Year Plan, can she hew policy, of except on the basis of steel. The key-note of the control of the basis of steel. the thought of except on the basis of steel. The key-note the thought of except on the basis of steel. The key-note the the truck by the Commerce & Industry Minister, appointed early in 1954 that Shew policy was struck by the Commerce & Industry Minister, the target for the million tons of ingot steel. the target for the next Plan must be 6 million tons of ingot steel.

That was, today if there is any whether Mhatever for the next Plan must be 6 million tons of ingot seed to the immediate reaction to that was, today if there is any the transfer of the immediate reaction to that was, today if there is any this target is enough or whether doubt left, it is only whether this target is enough or whether the imagines. This target events left, it is only whether this target is enough or wneuroproposed to he officer than one imagines. This target proposed to be attained as follows:

Tata Iton and Steel works. Mysore Iron & Steel Works By establishment of me	works_	•		Existing (in million tons)	Target for 1960 (in million tons)
By et Iron & Steel Works	•		•	0.9	2.0
Romablishm Steel works	•	•	•	0.2	0.9
Bhill Di of near	•	•	•	0.03	o.i
Mysore Iron & Steel Works By elablishment of new work Bhilai Plant Mysore Iron & Steel Works Routkela Plant Dugapur Plant	ks in the	⊉ubli	ic sector—		
Plant	•	•	•	• •	1.0
the .	•	. •	•	••	1.0
Milling deci	•	•	•	• •	1.0
Plant Plant Plant Plant	TOTAL	•	•	1.43	6.0

constitute a separate Ministry to deal exclusive mination of new works in the public sector underlines of the Government to achieve this target.

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- 3. The Ministry of Iron & Steel which came into being on the 15th of June 1955 took over from the Ministry of Production the responsibility for responsibility for the planning and execution of the two

 Works at Roughell Production of the two

 of the Works at Rourkela and Bhilai and also the administration of the Nahan Foundry Limited, Nahan (Himachal Pradesh). The planning and execution and execut ning and execution of the third steel plant which was to be located either in West Parada either in West Bengal or in Bihar was taken over from the Ministry of Commerce of T try of Commerce & Industry.
- 4. Considerable progress has been made with the planning and astruction of the Start was been construction of the Steel Works at Rourkela. The site has have got ready and the tarm of the steel works at Rourkela. got ready and the township is under construction. The site have been received for two been received for two main sections of the plant viz., for the ovens and the blast form ovens and the blast furnaces. Negotiations are going on for the best method of speeds. best method of speedy construction of the other sections of the plant. Work has begin in Directions of the plant. plant. Work has begun in Bhilai for the preparation of the site, of building of the township and building of the township and other preliminary works. A team in Russian experts led by the state of the site, of the state of the site, of the building of the township and other preliminary works. Steel in Russian experts led by the Deputy Minister for Iron & Report the U.S.S.R., Mr. Khlebrile. the U.S.S.R., Mr. Khlebnikov, presented the Final Project to the Government and Project 1955. Report has been examined by the Government of India with the assistance of India assistance of Indian assistance of In to the Government of India on the 9th December, with Report has been and India on the 9th December, with the state of the assistance of Indian experts and the Consulting Engineers of Sovernment of India. Government of Indian experts and the Consulting Engineers been agreed upon and a contract leave to the supply of equipment of the supply of equipment of the supply of the agreed upon and a contract has been concluded for the supply equipment and erection of the Supply to the Project Report as equipment and erection of the Steel Works according to the Report as modified. Certain go into an expected in the supply expected in the supply expected in the supply expected to the Project as modified. Report as modified. Certain sections of the plant are expected by ber 1950 go into operation in 1958 and the Steel Works as a whole by ber, 1959.
- 5. The United Kingdom Steel Mission which came out of a colombo Plan to survey and rd Government 1955. the Colombo Plan to survey and report on the establishment 1955.

 The Mission third Government steel Plant submitted its report in August for the Mission recommended Durant the location of The Mission recommended Durgapur in West Bengal as the United Kingdom Steel To. Kingdom Steel Mission were generally accepted by the Government connected with all of India. To advise the Government of India on technical matters connected with all steel questions. connected with all steel questions and in particular with firm ny truction of the third Steel Plant at D Consulting Engineers—The International Construction

 Ltd., London—was appointed as the Government of India. Ltd., London—was appointed as the Consulting Figure 4 delegand the possibility of the same time with a view delegand the possibility. a view to exprion to a view delegated and nlant, a rited tist

and specifications in the middle of January, 1956. examined by the Government of India with the assistance of the Consulting Engineers and further discussed with a delegation from the Reits I reached on the the British Consortium. An agreement has been reached on the broad structure of the contract to be entered into with the Consortium. tium. The detailed specifications and the final quotations will be submitted by the Consortium by the middle of May. If the final Contract is concluded by the end of June 1956, it is expected that certain sections of the plant will go into operation in the middle of and the entire Steel Works by December, 1960.

6. While the establishment of the main Steel Works is in itself a stupendous task, many subsidiary industries have got to be developed to maintain the main Steel Works; the chief of these are iton ore mines and coal mines. The three steel plants together will the steel plants together will make Require mines and coal mines. The three steel plants together the best use of million tons of coking coal per annum. To make the best use of the limited supplies of metallurgical coal in the of washing colors of Iron and Steel is exploring them with other of washing coking coals and of suitably blending them with other coals which by themselves cannot be used for metallurgical pur-

Approximately 6 million tons of iron ore will be required for the three steel works. deposits in the vicinity of the steel plants. Steps have been taken to exploit the iron ore

In the vicinity of the steel plants.

by brack works for one coal which will be carried out at each of number of valuable the steel carbonisation of coal which will be carried out at each by products like for the production of coke, a number of valuable lease like and benzole will be reby broducts for the production of coke, a number of valuethe dial is proposed, tar, ammonia liquor and benzole will be revaluable the distillation of the set up at each of these works facilities for the chemical distillation of the distillation of the set up at each of these works facilities for the the the the distillation of these by-products and thereby obtain valuable which these by-products and thereby obtain valuable the state of these by-products. chemicals which form the basis of a number of industries like the the stuffs, paints, varnishes, medicines, scents and antiseptics.

At Rourkela where steel will be produced by a new process—
the L.D. process—size steel will be produced by a new process—size place At Rourkela Whene steel will be produced by a new procession product. It is proposed to set up a fertilizer plant at this place broduct. It is proposed to set up a fertilizer plant at this proposed to set up a fertilizer plant at this proposed. large construction and contract will require large construction and

3. The Ministry of Iron & Steel which came into being on the 15th of June 1955 took over from the Ministry of Production Steel responsibility for the responsibility for the planning and execution of the two of the Works at Roughole and Transport of the two of the Works at Rourkela and Bhilai and also the administration of the Nahan Foundry Limit Nahan Foundry Limited, Nahan (Himachal Pradesh). The planning and execution of the located ning and execution of the third steel plant which was to be located either in West Romal either in West Bengal or in Bihar was taken over from the Ministry of Commerce 2. The try of Commerce & Industry.

4. Considerable progress has been made with the planning and nstruction of the Start was been construction of the Steel Works at Rourkela. The site has have got ready and the town. got ready and the township is under construction. The site has have been received for two many been received for two main sections of the plant viz., for the ovens and the blast functions ovens and the blast furnaces. Negotiations are going on the best method of speedy. best method of speedy construction of the other sections of the plant. Work has begun in Direction of the other sections of the plant. plant. Work has begun in Bhilai for the preparation of the site, of building of the township building of the township and other preliminary works. A steel in Russian experts led by the D Russian experts led by the Deputy Minister for Iron Report the U.S.S.R., Mr. Khlebriller the U.S.S.R., Mr. Khlebnikov, presented the Final Project This to the Government of India Report has been examined by the Government of India with the assistance of Indian expert assistance of Indian experts and the Consulting Engineers been agreed upon the 9th December, with the assistance of India with the assistance of Indian experts and the Consulting Engineers been agreed upon the 9th December, with the assistance of India as a second to the open the second to the consulting Engineers been agreed upon the 9th December, with the assistance of India as a second to the consulting Engineers been agreed upon the 9th December, as with the assistance of India with the assistance of India with the assistance of India with the assistance of Indian experts and the Consulting Engineers been agreed upon the India with the assistance of Indian experts and the Consulting Engineers been agreed upon the Indian experts and the Consulting Engineers been agreed upon the Indian experts and the Consulting Engineers been agreed upon the Indian experts and the Indian experts and the Indian experts and the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts are also as a second to the Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts and Indian experts are also as a second to the Indian experts are also as a second to the Indian experts are also as a second to the Indian experts are also as a second to the Indian experts are also as a second to the Indian experts are also as a second to the Indian expert Government of Indian experts and the Consulting Engineers been agreed upon and a contract base of the supply of equipment. agreed upon and a contract has been concluded for the supply equipment and erection of the St. equipment and erection of the Steel Works according to the Report as modified. Certain go into operations a result, certain modifications supply the equipment and erection of the Steel Works according to the expected go into operations. Report as modified. Certain sections of the plant are expected ber, 1959 go into operation in 1958 and the Steel Works as a whole by December, 1959.

5. The United Kingdom Steel Mission which came out under of a Colombo Plan to survey and rd Government 1955. the Colombo Plan to survey and report on the establishment 1955.
The Mission rect third Government steel Plant submitted its report in August for the Mission recommended Durger the location of The Mission recommended Durgapur in West Bengal as the United Kingdom Steel Na. Kingdom Steel Mission were generally accepted by the Connected with all of India. To advise the Government of India on technical truction of the thing. connected with all steel questions and in particular known companies. The Consulting Engineer truction of the third Steel Plant at Durgapur, a well known to 101 Ltd., London—The International Consulting Engineers—The Internation of the Internation of India on technical the India on the India Ltd., London—was appointed as the Consulting Engineers explicitly of the possibility of the speedy construction, with a view delegant from a British Consulting construction and the possibility of the speedy construction. the possibility of the speedy construction of the plant, invited atistic discussions were held as the Consulting view delegand view delegand from a British Consortium of steel manufacturers was be a Stell discussions were held to find out what a could be a stell factory arrangement for the plant, and the same time, with a stell discussions were held to find out what a could be a stell factory arrangement for the plant, and the same time, with a stell discussion were held to find out what a stell discussion where the same time, with a stell discussion was be a stell discussion where the same time, with a same timplication time, with a same time, with a same time, with a same discussions were held to find out whether there complete Steel Works by one agency factory arrangement for the construction of the Indian auotation works Construction. The Print Indian auotation works Construction Co. Ltd.—submitted its preliminary

and specifications in the middle of January, 1956. examined by the Government of India with the assistance of the Consulting Engineers and further discussed with a delegation from the Reiter Consultation on the the British Consortium. An agreement has been reached on the broad structure of the contract to be entered into with the Consortium. The detail the contract to be entered into with the Consortium. tium. The detailed specifications and the final quotations will be Submitted by the Consortium by the middle of May. If the final Contract is consortium by the middle of May. Contract is concluded by the end of June 1956, it is expected that certain sections of the plant will go into operation in the middle of 1959 and the entire Steel Works by December, 1960.

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Approximately 6 million tons of iron ore will be required for the works to exploit the iron ore three steel works. deposits in the vicinity of the steel plants. Steps have been taken to exploit the iron ore

In the vicinity of the steel plants.

y broad Works for the of coal which will be carried out at each of pumber of valuable the steel carbonisation of coal which will be carried out at each of the products like coal the production of coke, a number of valuable like coal to be production of coke, and benzole will be refacilities for products like coal tar, ammonia liquor and benzole will be redistillation of the set up at each of these works facilities for the distillation of the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of these works facilities for the set up at each of the set up the distillation of these by-products and thereby obtain valuable street which form the basis of a number of industries like the chemicals proposed to set up at each of these works dye stuffs, paints the basis of a number of industries like the dye stuffs, which form the basis of a number of industries included that Roberts, varnishes, medicines, scents and antiseptics.

At Rourkela where steel will be produced by a new process the L.D product. Nourkela where steel will be produced by a new process—nitrogen will be available in large quantities as a fertilizer plant at this place by products where steel will be produced by a new to product. It is proposed to set up a fertilizer plant at this place nearly 80 000 to set up a fertilizer plant at this place product. It is proposed to set up a fertilizer plant at this propose

large construction and operation of the steel plants will require the bold the bold of technicians large construction and operation of the steel plants will require the foreman categories above 2 100 of the rank of Foreman categories 2 100 of the rank of Foreman ca below humber of technical personnel—about 15,000 technicians to herienced. Owing to adopt of engineers, qualified and expressions of the steel plants with the proposed to recruit to have above Foreman category and about 2,100 of the rank of Foreman the iron a dearth of engineers, qualified and extended to have and to have Renced. Owing to a dearth of engineers, qualified and extensions and steel industry, it is proposed to recruit the contract of Rineed, Owing to a dearth of engineers, qualined by Stably trained With little or no experience and to have the little or no experience and to have stably trained to recruit the stable of the stable Steel Plants, the recruitment of qualified personnel has been

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centralised. For this, a special committee has been set up with a member of the Union Public Service Commission as Chairman. Steps are being taken to secure training facilities for the engineers and technicians both within the country and abroad.

8. The Nahan Foundry was established about 80 years ago by the Maharaja of Sirmur. It was taken over by the Government of India in 1952 ment of India in 1952 and a private limited company registered under the Indian Company registered under the Indian Companies Act was formed in October, 1952 the management the management of the Foundry. The Company formally over the management of the Foundry from 1st January, 1953.
Board of Directors Board of Directors of this Company is composed of eight members, an equal number of the Company is composed of eight members, an equal number of whom has been nominated by the Government of India and the User of India and In of India and the Himachal Pradesh Government. The Foundry manufactures agriculture of these manufactures agricultural implements, the most popular of these being sugar-cane graphs being sugar-cane crushers. Owing to keen competition from private manufacturers of cone manufacturers of cane crushers and the loss of the margin of Pakistan, the Foundary by Pakistan, the Foundry has been unable to maintain the margin of profit which it used to come in the margin of the profit which it used to earn before it was taken over by Government. Attempts have been ment. Attempts have been made in recent years to develop certain new items of manufacture new items of manufacture so as to utilise the capacity and personnel more fully.

By a Presidential Order dated the 21st February 1956 the control of the Nahan Foundry has been transferred to the Ministry and Commerce and Industry and the control of the Mysore Iron and Steel Works transferred from the Ministry of Commerce and Industry to the Ministry of Iron and Steel.

STEEL 1956.



MINISTRY OF IRON & STEEL

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signed the supply of equipment for the Bhilai Steel Works being between India and the U. S. S. R. in New Delhi.

THE TARGET

The amount of steel which a country makes or uses is generally garded as a By this regarded as a measure of its industrial development. By this standard, the Trained Co. of its industrial development million standard, the United States leads, producing over a 100 million tons a year. Next comes the Soviet Union with over 40 million tons each. India tons, Britain and Germany follow with 20 million tons each. India has so far been very much behind, producing only a little over a industry in the Second hillion tons a year. With the emphasis on industry in the Second Five Year Plan, With the emphasis on industry in the Second shortage of steel The Country as a whole is getting conscious of the markedly evident during the Shortage of steel. The deficiency was markedly evident during the very of the First Diagonal Covernment of India made a last year of the First Plan period. Government of India made a Very rapid the First Plan period. Government of India made a the country would requirements and estimated that by 1960 the country would require 6 million tons of ingot steel or about 4.5 billion tons of finished steel products (Annexure I). Today it looks that the finished steel products (Annexure I). The target may have to be increased sooner than one imagined. The target may have to be increased sooner than one imagine.

Milion tons is proposed to be attained as follows:

									, 10110WS.
İ	Tata Iron and S Mysore Iron & S Rourt	existing works—						Existing (in million tons)	Target for 1960 (in million tons)
	Mysore Iron & S Mysore Iron & S Rourkela Plant Durgapur Plant	Steel Works Steel Works of new works	in the .	•	•	•	:	0·78 0·33 0·03	1·50 0·80 0·10
	Plant		- cite l	public	secto	r			
	the allocation of the hither the	• • •	•		•	•	•	••	0·72 0·77
	give ocation		•	T _{OTAI}			-		0.79
	in it in a of				. •	•	• _	1.14	4.68
	the nthe Annex	products to	h-						

nnexure II.

the private private sector, the greatest expansion will be that or the of their existing plants. Besides considerable modernization of the private sections will be added increasing the private section will be added increas of their & Steel Company. Besides considerable modernization to a total of 2 million tons of ingot steel or 1.5 million Outbeir & Steel Company. Besides consulting of the total of 2 million tons of ingot steel or 1.5 million broducts. The first phase of the Tatas programme of rolled a total of 2 million tons of ingot steel or 1.5 million of Sale their products. The first phase of the Tatas programme of sale their productive capacity from 780,000 tons to 931,000 mile nrogramme is estimated to cost of chase products. The first phase of the later their productive capacity from 780,000 tons to 931,000 in crores. This programme is estimated to cost phase of the programme which of sale their productive capacity from 780,000 tonet increasing their productive capacity from 780,000 tonincreasing their productive capacity from 780,000 tonet increasing their productive capacity to 1.5 million tons of at 43 crores. For the second phase of the programme which their productive capacity to 1.5 million tons of

rolled products, Tatas have entered into an agreement with Henry J. Kaiser & Co. of the section and the continuated J. Kaiser & Co. of the U.S.A. for technical assistance. It is estimated that this programmer that this programme would cost over Rs. 65 crores and will be completed by Mary 1077 completed by May 1958.

The expansion plan of the Indian Iron & Steel Company also is ng executed in two -1 being executed in two stages, raising the capacity to a total of sold tons of saleable stack tons of saleable steel per year. This expansion is estimated to this about Rs. 35 cross The saleable steel per year. about Rs. 35 crores. The Government of India are assisting to expansion financially by expansion financially by the advance of interest bearing loans the extent of Rs 70 cm. the extent of Rs. 7.9 crores and a special advance of Rs. 10 crores from the equalisation for a special advance of Rs. 10 crores from the equalisation fund. In addition IISCO have secured a loan of Rs. 13 crores from the secured a guaranteed of Rs. 13 crores from the secured a loan guaranteed of Rs. 13 crores from the secured a loan guaranteed of Rs. 13 crores from the secured a loan guaranteed of Rs. 13 crores from the secured a loan guaranteed of Rs. 13 crores from the secured a loan guaranteed of Rs. 10 crores and a special advance of Rs. 10 crores and a special adva of Rs. 13 crores from the World Bank, which has been guaranteed by the Government by the Government. The second phase of IISCO's expansion programme will be completed in the second phase of IISCO's expansion programme. gramme will be completed by 1958-59.

There is a programme of expansion suggested for the third exist steel works—the Mysser and the Bhadrayati. ing steel works—the Mysore Iron & Steel Works at Bhadravati.
The details of this programme and are still The details of this programme have not yet been finalised and stell under examination

The gap of nearly 3 million tons which will be left even after by expansion of the existing establishment of the existing establishment. the expansion of the existing works is proposed to be capacity the establishment of three at the establishment of three steel plants of a million ton Durgapur (West Benzell) each at Rourkela (Orissa), Bhilai (Madhya Pradesh) and chosen. (West Bengal). One would sale (Madhya Pradesh) have been roductive. (West Bengal). One would ask why these places have been tion a steel is fairly simple. The answer is fairly simple. For efficient and economic production a steel plant should be materials and tion a steel plant should be so situated that it can receive even materials and send out the series is fairly simple. materials and send out the finished products in a smooth and large quantification. manner at as little cost as possible. Raw materials are every year about 2 million. large quantities. Each of the steel plants will consume tons of iron coal, 550,000 about 2 million tons of iron ore, a little less than 2 million tons of tons of limes. coal, 550,000 tons of limestone, 300,000 tons of manganese ore and there will consume evertons of place which is no tons of manganese ore and thousands of tons of other materials those of the other place which is near the sources of coal and iron ore and ideal, the unfortunately those of the other raw materials would, of course, be the start there are not chosen. unfortunately there are not many places where the ideas the right kind is found along side. right kind is found along side the iron ore. Nevertheless, the most suitable from the right wiew of proximate of all these raw materials would, of course, be the find of the site of all these raw materials would, of course, be the find the site of sites are not many places. Nevertheless, to site of all these raw materials would, of course, be the find the sites of sites are not many places. Nevertheless, to site of all these raw materials would, of course, be the find of the sites are not many places. The sites of sites are not many places. chosen are the most suitable from the point of view like print of Bihar which are of all these raw materials. There are some other of raw like main of good in Bihar which are equally close to the sources of raw like target of good communication. Neverthere are some other sites materials to the target of the sources of the sou but there have been other difficulties with these anxiety left the target as rapidle. of good communications or water supply. With the anxiety be exploited at a later of contract of the sources of raw like strain of good communications or water supply. With the anxiety left the target as rapidly as one could be exploited at a later stage.

STEEL MAKING

Large scale production of iron and steel has developed gradually over centuries. Improvements have been directed towards the efficient and economic mining of iron ore, coal and limestone and to the economic mining of iron ore, coal and limestone and to the economic mining of iron ore, coal and minimum steel. In and manufacture of higher and higher qualities of steel. In order to separate iron from the ore it has to be refined by fire to make the separate iron from the ore it has to be refined. by fire to remove impurities such as earth, sulphur, phosphorus, etc. In the early days charcoal was used. Coal lacks the mechanical strength and the chemical qualities required to smelt iron ore. It was not until about the middle of the 18th century that an efficient method of converting coal into a form where it could be used for smelting iron verting coal into a form where it discovery of the smelting iron ore, was discovered. With this discovery of the manufacture of "coke" from coal, the possibility of refining large quantities of iron ore was thrown open.

1856 is the next land-mark in the history of iron and steel when Sir Henry Bessemer discovered a method of producing steel quickly have cheaply from the said to and cheaply from molten pig iron. The Steel Age may be said to ind. commenced in the iron and steel have commenced in that year. Developments in the iron and steel and the developments in transport industry have since followed closely the developments in transport and economic since followed closely the developments in transponding generation of power, until today steel works are of dimensions unimagined even in the recent past.

After the raw materials are mined and transported to the steel After the raw materials are mined and transported to the school, which are lease its Coal which are large chambers made of refractory material the matter mut top of these ovens is heated to release its is called "coke" is pushed out Volatile matter. The residue, which is called "coke" is pushed out at the matter. The residue, which is called "coke" is pushed the matter. This will begin to burn if exposed to air in its hot specification. Condition. The residue, which is called to air in its included. It is, therefore, cooled by spraying water on it and then the coloring and araded to the required sizes. The coke is crushed and graded to the required sizes.

The coke is crushed and graded to the required in the iron ore is also prepared by crushing, screening, sintering, in order to improve the iron. In etc, in order to improve its quality. It is then heated in a "blast impurities from the iron. In the on blast furnished a blast furnished on blast furnished on blast furnished on blast furnished wertical steel cylinder which is effect, in order to improve its quality. It is then nearly hade on the inside with a large vertical steel cylinder which is a large vertical steel cylinder which is a fine of resisting ined a blast furnace is a large vertical steel cylinder which refractory bricks. Refractory bricks are which have properties of resisting hade on the inside with refractory bricks. Refractory bricks are steel cylindes. Steel cylindes of clay which have properties of resisting are as high as 100 ft. are fitted cylindes. With These at types of clay which have properties

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The day which are in the base through which hot air is forced by The top which are in turn driven by gas or steam turbine engines.

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The steal are the steal ar is top of the in turn driven by gas or steam turn.

language at ion be poured into the cylinder even while the furnace is noured from trucks which in the tron ore is followed. operation. First iron ore is poured from trucks which in the steel-maker are called "skips". Iron ore is followed



Shop. Melting Steel the 50 ø ď

by a skipful of coke and limestone. Once the furnace is lighted, air is blown through the nozzles and this helps to keep the coke burning at intense heat. As this burning goes on, limestone combines with the immediate heat. bines with the impurities to form what is known as "slag". At the same time gases and same time gases rush upwards acting on the ore. These hot gases together with the life mass together with the limestone convert the ore into a spongy mass which then turns and through which then turns into molten iron. This trickles down through the coke and collected the coke and coke and collected the coke and coke the coke and collects at the botton of the furnace. The slag which is lighter floats on the slag are is lighter floats on top of the molten metal. Iron and slag are taken out of the furnity metal is taken out of the furnace at regular intervals. The molten metal is drawn off or "tanned" if drawn off or "tapped" through a hole once every four hours of rushes, The metal which in this molten condition is white hot rushes, throwing sparks and throwing sparks and is either taken into ladles to the next where where it is converted in this molten condition is white hot taken the next stage where where it is converted in the next stage. where it is converted into steel or is led into a channel from These it goes into a series of it goes into a series of sand moulds where the iron cools.

moulds along the channel moulds along the channel resemble a litter of pigs lying around their mother. Hence the their mother. Hence the name "pig iron".

In the process discovered by Bessemer and developed later to ercome some of the drawler into a large overcome some of the drawbacks, molten iron is poured into a large vessel lined with refractant vessel lined with refractory material and air is blown in the under pressure. The overunder pressure. The oxygen in the air burns the carbon in the iron as also most of the iron. iron as also most of the impurities like silicon and manganese.

The heat generated by the impurities like silicon and the iron and manganese. The heat generated by this burning in itself keeps is the into brilliant at molten condition. As the impurities are burnt, there is high into brilliant display of fireworks brilliant display of fireworks as the flames leap dazzling the flame subsides to the air. During this process the metal is boiling. As subsides, the blast is kept or in the metal is boiling. subsides, the blast is kept on to remove the phosphorus process and to come an modern development is the use of oxygen to speed up steel to be added.

As out out out out of the phosphorus process and to control it. Use of oxygen to speed up steel to be added. and to control it. Use of oxygen allowed some scrap steel to added.

While the Bessemer process heralded the Steel Age, it was significantly the man harmonic than the increased significantly the man harmonic than the increased significantly the man harmonic than the increased significantly the man harmonic than the significant t next development "the open hearth process" which increased significantly the production of star? ficantly the production of steel and brought about rapid itself ap the manufacture. ments in the equality of steel and brought about rapid itself to the manufacture of higher and the process, which lends of scrap steel are added. the manufacture of higher quality steels, large quantities shallow covered swime. steel are added. The open hearth furnace looks made make resisting refract covered swimming bath. The walls and roof are furnaces of the resisting refractory bricks. Modern open hearth furnaces to furnaces the furnaces of steel at a time. 200 to 300 tons of steel at a time. From one side are quantiles overhanding is done in the standard of the side and side are quantiles. raw materials, iron, scrap and limestone, in appropriate of heavy overhead cranes. The charging is done in long rectangular boxes by means of the charging by burn:

In the charging is done in long rectangular boxes by means of the charging is obtained by burn: overhead cranes. The high temperature required in overhead by burning the gases are the coke overhead cranes. overhead cranes. The high temperature required in the coke ovens tar which also is obtained as a by the coke ovens. tar which also is obtained as a by-product from the coke

Yet another process which has been very recently developed is what known as "the Linzer Dusen Stahl" or "L.D." process. In this the molten are reserved to the molten as "the Linzer Dusen Stahl" or "L.D." process. the molten iron is poured into huge egg-shaped converter vessels which can be a poured into huge egg-shaped converter vessels which can hold 35 to 40 tons and oxygen is blown at an enormous speed for about 20 minutes or so. This is a quick and economical way of making steel but so far it has been used only in making what are known as "soft steels" of the kind required for making sheets. Yet are the use of electric sheets. Yet another method of making steel is by the use of electric furnace power to generate heat. This is known as the "electric furnace

Steel Which is made by any of these processes is in a molten Condition. This made by any of these processes is in a more moulds, molten steel is poured into receptacles called When they are taken ingot moulds" and allowed to cool in them. When they are taken Out, they are heavy rectangular blocks weighing anything from 3 to 10 tons. These are called "ingots". Ingots are then "stripped" tom their moulds are called "ingots". Ingots are then "stripped bites, ally below and transferred to rectangular furnaces situated furnaces called "soaking furnaces called "soaking or generally below ground level. These furnaces called "soaking the increase of t pits" below ground level. These furnaces called "source or correct temperature for working or

These ingots are then "rolled" between heavy rollers to produce to mails channels, beams, These ingots are then "rolled" between heavy rollers to proude the shapes and sizes—plates, sheets, rails, channels, beams, the heavy ingots in a etc. The shapes and sizes—plates, sheets, rails, channels, beams, bolomis mills. The passed directly to the various finishing heavy ingots cannot be passed directly to the various of the sections in a squeeze of the white hot ingots are first reduced to smaller sections are closer "blooming" ingots cannot be passed directly to specification of the lend of the ingots are brought closer and closer ingot is ingot is together in between rollers which are brought closer and crose-squeezed to a "bloom" of this initial thinning process, the ingot is specifically a square. When the ingot is specifically a square with the send of this initial thinning process, the ingot is specifically a square when the ingot is specifically a square with the square are reduced to a "bloom" usually about 5" square. When the ingot is a thin a plates, the pieces are Called to a "bloom" of this initial thinning process, called "slabs" a thinner section for rolling plates, the pieces are instead of "laborated "slabs" instead of "laborated "slabs" instead of "laborated "slabs" instead of "laborated "slabs" instead of "laborated slabs" instea ralled into a "bloom" usually about 5" square. When helped slabs, a thinner section for rolling plates, the pieces are section for rolling plates, the blooms or slabs are again the being stated being shaped the finishing the particular reheated "slabs" instead of "blooms". The blooms or slabs are againg the rollers have assed to the finishing mills. At the finishing mills are the particular bills, the fore being passed to the finishing mills. At the finishing have profiles cut into them to give the particular heam or a plate. thape desired a rail, a channel, a beam or a plate. Instead of being cast into ingots for rolling, molten steel may be castin to ingots for rolling, molten steel may be Doursed a rail, a channel, a beam or a presented directly into ingots for rolling, molten steel may be said moulds of the desired shape to form

be heated, instead of being finished into rolled products, blooms may be heated and hammered or "forged" to make other desired shapes and wagons. Wheels and hammered or "forged" to make other and axles for locomotives and wagons. of the side and axles for locomotives and wagons.

The hatting three steel works in the public sector the processes and will be made to will be made in the local will be made in the local will be made.

be the three steel works in the public sector th the the of the same. At Bhilai and Durgapur steel will be of plates and sheets, most of the steel will be he open the same. At Bhilai and Durgapur steel will be made of nlates most of the steel will be

made by the L.D. process and some by the open hearth process.

The rolling mills in the control of the control The rolling mills at the three plants will be different depending on the nature of the the nature of the products to be rolled (Annexure II). At Durgapur there will also to form pur there will also be a special plant to hammer blooms to form wheels, tyres and wheels, tyres and axles for the Railways.

Rourkela is a small village 257 miles from Calcutta on the main THE ROURKELA STEEL WORKS railway line between Calcutta and Bombay. It is at the confluence of the rivere Samuel. Iron of the rivers Sankh and Koel which go to form the Brahmani. Iron ore for this plant will be drawn from the rich deposits of Taldih Which are about 60 miles away. Coal will be obtained largely from Jharia. Limestone the Bokaro and Kargali fields and partly from Jharia. Limestone from the from the Come Will come from the nearby deposits of Hathibari or Birmitrapur. The multipul the nearby deposits of Hathibari or Birmitrapul.

Supply about 40 000 to 60 000 will of nower. The balance of the supply about 40,000 to 60,000 KW of power. The balance of the demand for electric power will be met by a big thermal station of which mately 75 000 to 100 approximately 75,000KW which is being set up at site. This plant, Which is being set up at site. This pland, the two Well-Land of Krupp and Demag, will of the being set up with the technical and financial association of the being set up with the technical and financial association in the production of act products.

An the production of flat products.

doption outstanding feature of the Rourkela Plant will be the Rourkela Plant will be the County of the Linger During process which An outstanding feature of the Rourkela Plant will be the steel weloped in Anothic Code in Anothic Code in Code employed in about eight have the Was developed in Austria and is now employed in about eight mais process is expected to have the Steel Works in Austria and is now employed in about eight duction ses of lower and and a process is expected to have the analysis of the world. This process is expected to have the analysis and approximation costs, higher rate of promise these divantages in the World. This process is expected to have the world and operating costs, higher rate of production ges of lower capital and operating costs, higher rate of protection be very significant advantages. an incidental but more introducts for Would and saving in space and ancillary equipment. While these the Manual Advantages, an incidental but more into the Manual Advantages, an incidental but more into the Manual Advantages and incidental but more into the Manual Advantages. the hand saving in space and ancillary equipment.

The hand saving in space and ancillary equipment.

Which hand advantages, an incidental but more interesting the beautiful beautiful beautiful beautiful beautiful and a series of important chemicals industry. The which would be the utilisation of the by the basis of a wide chemical industry. The work of the basis of a wide chemical industry. The available as a process form the basis of a wide chemical industry. The product from the basis of a wide chemical industry. The broduct from the atmosphere nitrogen will be available as a fortilizers. by products of this fartilizer industry together with the product. This would be used for the manufacture of fertilizers. turn, by product. This would be used for the manufacture of fertilizers.

This would be used for the manufacture of fertilizers.

The color would be used for the manufacture of this fertilizer industry together with the would be used for the manufacture. tacture of from the coke ovens would be used for the manuracture.

This of various chemicals.

This would be used for the manuracture of the products of this fertilizer industry together with the coke ovens would be used for the manufacture.

The of various chemicals ovens would be used for the manufacture.

The of various chemicals ovens would be used for the manufacture.

The of various the coke ovens would be the coke oven the coke ovens would be the coke oven the c the German Combine—Indien Gemeinschaft Krupp Demag—has bettingerte has been comitinized by the Government with the help Militterman Combine—Indien Gemeinschaft Krupp Demekter has been Scrutinised by the Government with the help approved with certain modifications. The main export has been scrutinised by the Government with the help of the plant as annowed are: det perts has been scrutinise.

of the approved with certain

(a) A plant as approved are:—

ith a capaci (a) A plant as approved are:—
(b) of coal "thmough with a capacity of about 1.6 million tons

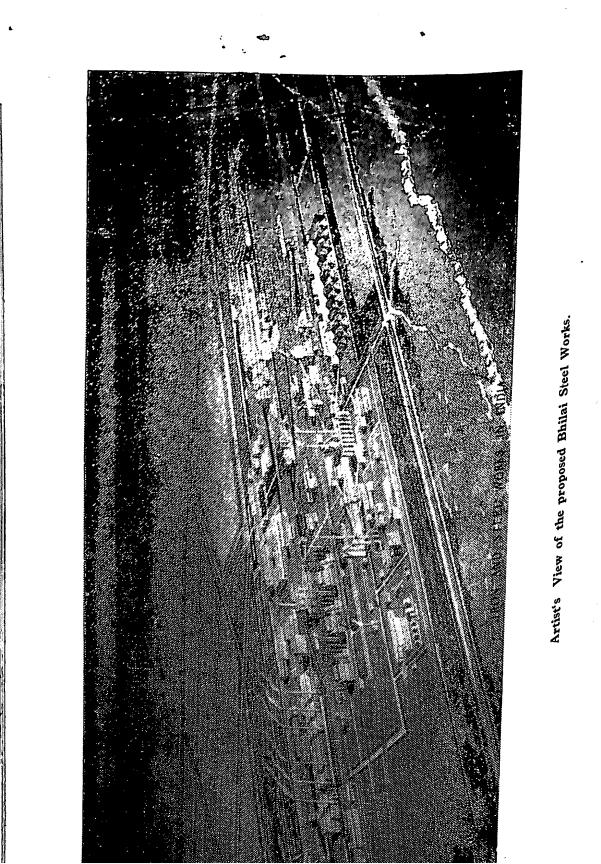
The plant with a capacity of about 1.6 million tons

to start

(b) of coal "through-put" per annum;

With (to be increased to 4 furnaces later on) with a

With turnace plant consisting of 3 furnaces to started output increased to 4 furnaces later on) with a rated output of 1,000 tons per furnace per day;



THE BHILAI STEEL WORKS Bhilai is 156 miles from Nagpur on the main Bombay—Calcutta line. Iron ore for this plant will be obtained from the Dalli Rajahra deposits about 50 and Will be obtained from the Dalli Rajahra Pahar deposits about 60 miles away. Coal to be used at this plant plant away. Rokaro-Kargali fields and Will be a blend of metallurgical coal from Bokaro-Kargali fields and the other coal of Korba. Limestone Jharia fields and the otherwise non-coking coal of Korba. Limestone in the vicinity of the property of the pro is found in the otherwise non-coking coal of Korba. Limestone only the iron ore deposite of the works. This plant will thus exploit not only the iron ore deposits of Madhya Pradesh but will also make the best use of the coal from the Korba fields which otherwise cannot be matallingical will be supplied by the Used for matallurgical from the Korba fields which otherwise cannot know canal. The main come from a thermal station at Tandula canal. The main power will come from a thermal station at the total works are being set up with Korba about 100 miles away. The steel works are being set up with and financial accietance of the Government of the the technical and financial assistance of the Government of the main power will come it.

and will consist of the following principal departments: USSR and will consist of the following principal departments:

- (b) a blast furnace plant and auxiliary equipment;
- (d) description of the stripping ingots; (e) soaking casting, handling and stripping ingots;
- (f) mills and plants to roll the various products;
- (h) plants for the production, supply and transmission of water. however, the works and the township; Water, power and gas for the works and the township; (i) Water, power and gas for the works
 (j) repair the recovery of by-products; and

(j) repair for the recovery or and other auxiliary shops.

(ISSR, repair and other auxiliary shops.

tor the the Soviet Organizations with the Government of the will undertake the responsibility steel works USSR, the sto the agreement with the Government of the etchion is in the supervision of the construction of the steel works machinery and the steel works for the the Soviet Organizations will undertake the responsibility equipment supervision of the construction of the steel works,



THE BHILAI STEEL WORKS

Bhilai is 156 miles from Nagpur on the main Bombay—Calcutta line. Iron ore for this plant will be obtained from the Dalli Rajahra denosito at this plant Pahar deposits about 60 miles away. Coal to be used at this plant will be a bland fields and will be a blend of metallurgical coal from Bokaro-Kargali fields and Jharia fields and the otherwise non-coking coal of Korba. Limestone is found in the control of t is found in the vicinity of the works. This plant will thus exploit not only the iron ore deposits of Madhya Pradesh but will also make the best use of the coal from the Korba fields which otherwise cannot be matelline. It is supplied by the used for matallurgical purposes. Water will be supplied by the Tandula canal. The main power will come from a thermal station at Korba about 100 miles away. The steel works are being set up with User Covernment of the the technical and financial assistance of the Government of the and will contain a departments: USSR and financial assistance of the Governments:

- (a) a coke oven plant;
- (b) a blast furnace plant;
 (c) a coke oven plant;
 (d) a blast furnace plant and auxiliary equipment; (c) a steel melting plant;
- (d) facilities melting plant;
 (e) SOAL: for casting, handling and stripping ingots; (e) soaking pits;
- (f) mills and plants to roll the various products;
- (h) plants plant;

 Water the production, supply and transmission of water works and the township; Water, power and gas for the works and the township; (i) water, power and gas for the worm.

 (j) renoit for the recovery of by-products; and

(j) repair for the recovery or by repair and other auxiliary shops. USSR, ording and other auxiliary snops.

for the the Soviet Organizations will undertake the responsibility

equivon in machinery and SSR, the the Soviet Ordinate with the Government of the tree to the agreement with the Government of the tree tree works, for the the Soviet Organizations will undertake the responsibility equipment the supervision of the construction of the steel works, machinery and machinery and soviet equipment. They will also commissioning of the plant, machinery and most of the plant. equipment. They and commissioning of the plant, machinery and equipment at all also supply most of the plant, machinery and equipment at all also supply most of the plant, machinery and equipment at all also supply most of the plant, machinery and equipment at a personnel in the USSR. The Soviet are plant and appropriately provided by the plant and appropriate the plant appro Organient. They will also supply most of the plant, mache of the plant, mache of the plant, mache of the plant of the plant, mache of the plant, mache of the plant and of the plant of the plant and of the plant of Signate and will also supply most or the collisions of the collisions will be paid Rs. 2.5 crores for their services and approach be initially and the plant and equipment. The plant and per per annum. The perk to be equiphons will be paid Rs. 2.5 crores for their services done intime the first of Rs. Interest will accorded to the plant and equipment. The plant and equipment in the plant and equipment. The plant and the structure interest will accorde at 2½ per cent per annum. The plant and equipment will accorde at 2½ per cent per annum. The sincering work to be a first Rs. 110 instalment 63 crores for the plant and equipment. The probability Right Supplies from India and the engineering work to be estimated at Re 47 crores making a total of Rs. 110 done diture. Interest will accrue at 2½ per cent per annual is estimated at Rs. 47 crores making a total of Rs. 110

crores for the works exclusive of the salaries of Soviet experts and Indian staff at Bhile:

The Soviet Organizations submitted the detailed project report on 9th of December 1055 the 9th of December 1955. This was examined by the Government of India and accented with India and accepted with certain modifications on the 8th of March 1956. Contracts have be 1956. Contracts have been concluded for the supply of equipment worth Rs. 55 cross and worth Rs. 55 crores and structural steelwork worth approximately Rs. 8 crores. The first Rs. 8 crores. The first consignment of equipment is expected towards the end of June. 1956 the end of June, 1956. Three coke oven batteries, two blast furnaces, two open hearth furnaces. two open hearth furnaces and a blooming mill will be commissioned by the 31st of December 1050 by the 31st of December 1958 and the rest of the steel works by the 31st of December 1959

THE DURGAPUR STEEL WORKS This plant will be at Durgapur 110 miles from Calcutta on main mail Iron ore for the main railway line between Calcutta and Delhi. Iron ore for this plant this plant will come from the well-known deposits of Gua which also supply my from the well-known deposits of Theria will be also supply TISCO and IISCO. The coking coals of Jharia will be blended with the weakly coking coals of Barakar. Water will be taken from taken from the Damodar river which flows along side the site. The main supply of electric power will be from a big thermal Station which will be erected close to the steel works. There will be a smaller plant as stand-by at the steel works.

Broad agreement has been reached with a British Consortium of manufacturers known as the Indian Steel-works Construction Co., for the construction of this plant. This contract with a single agency for the construction of this plant. This contract with a seedy execution of the entire work is expected to help in the speedy that the speedy the construction of the entire work is expected to help in the speedy that the speedy tha execution of the entire work is expected to help in the special twelve months project and thereby save as much as eight to Welve months which would otherwise be spent in the preparation tended plant which would otherwise be spent in the preparation and inviting global of detailed plans, designs and specifications and inviting global the Under the Drive is tenders. Under the agreement reached with the British Consortium, suh. Value of F CD agreement reached with the British Consortium, the Value of F.O.B. supplies will be nearly £50 million. This is various in the first consultation. Subject, in the final quotation to be submitted in May 1956, to a origin of plus agreement reacned with the final quotation to be submitted in May 1956, to a radia Variation of plus or minus 5% for errors and omissions from the proposed of plus or minus 5% for expenditure in India original of plus or minus 5% for errors and omissions from the Rs. 40 crores. The estimate of rupee expenditure in India is Rs. 40 crores.

Part of the foreign exchange needed for this project will come from two sources:

(a) a loan of £11.5 million from a syndicate of banks in the

(b) a loan of £15 million from the United Kingdom

The Government.

le years 1957_1060 be taken, as at present arranged, mainly during at loan will be taken, as at present arranged, mainly during the years 1960—1964. The bank loan will be taken, as at present arranged, mainly during being h. Will carred and will be repaid during the years 1960—1964. The years 1957—1960 and will be taken, as at present arranged,—
being but will carry interest at 1% over the bank rate for the time
talk talk Subject.

of 4½%. Although the present being but subject to a minimum of 4½%. Although the present and is 5½% it among the present and the present an taken is 5½% it would probably go down by the time the loan is

The loan to be advanced by the United Kingdom Government of the repaid of the banks. The rate of Government's borrowing this loan would be the United Kingdom cover rate at the loan is taken plus a small element bottowing rate at the time the loan is taken plus a small element cover sate at the time the administrative charges.

SUBSIDIARIES

The sources of the four principal raw materials, iron ore, coal, nestone and dolomits. limestone and dolomite for each of the plants have been mentioned.

Iron ore for the Rourkela steel works will be obtained from ldih 60 miles aware Taldih 60 miles away. Investigations are now going on at site to determine the exact last in determine the exact location of the deposits to be worked. Mining of iron ore at Toldie of iron ore at Taldih will be undertaken by the Government directly. An American 2 directly. An American firm of engineers has been appointed of Consultants to advise on the Consultants to advise on the technical problems of mining iron at this place. Similarly the at this place. Similarly the Government will undertake directly mining of iron ore at Dalli B. mining of iron ore at Dalli Rajahra. At the request of the Government of India the Soviet One ment of India the Soviet Organizations have submitted a preliminary project report. The minutes of the Government of the project report. The mines will be designed and worked with technical assistance of the technical assistance of the Government of the USSR. Equipment for these mines will also be for these mines will also be supplied by that country on ordinary commercial terms. The start commercial terms. The steel works at Durgapur will no developed ore from either the existing ore from either the existing mines or from mines to be developed in extension of the existing or from mines to be developed in extension of the existing or from mines to be developed in extension of the existing or from mines to be developed in extension of the existing or from mines to be developed in extension of the existing or from mines to be developed in extension of the existing or from mines to be developed in extension of the existing or from mines and mines are the most accession. in extension of the existing ones in Gua, which are the most accessible deposits from this place

The three steel plants together will require about 5.2 million sof coking coal per annual committees tons of coking coal per annum. A number of expert have gone into the question of the country the have gone into the question of coal reserves in the conserver of that while the reserves of their utilisation. The consensus of their opinion is that while the reserves of non-metallurgical is not the reserves of non-metallurgical coal are sufficiently large, metallurgical. is not the case with metallurgical coal. The conservation metallurgical coal is not a not the case with metallurgical coal. The conservation try. metallurgical coal are sufficiently large, vation try. metallurgical coal is not a problem peculiar only to this counical advances related to the expectation of the conservation and the conservation try. It might, therefore, be expected that there would be advances which would find alternative would be making iron of steel which advances which would find alternative methods of making use metallurgical and appropriate methods of the use good. metallurgical coal or at least reduce the dependence on good quality metallurgical coal to a least reduce the dependence on problem is of steel which would find alternative methods of making use steel which would either eliminate the necessity metallurgical coal or at language. quality metallurgical coal to a large extent. But the improblem is of making the most quality metallurgical coal to a large extent. But the immediant problem is of making the most economical use of taken eserves of metallurgical coal. Measures have been consumpted adopt gradually other alternative fuels. At the same time, hed so that the same time, hed so that the same time, hed so that the same time. adopt gradually other alternative fuels. At the same washoosid that its ash content been recommended that metallurgical coal should be possible to blend it wish that its ash content might be reduced. Thereby it would be used for metallurgical meta that metallurgical coal should be was possive to ble to blend it with coals which otherwise cannot be used for metallurgical purposes.

The major The major sources of coking coal are in Kargali/Bokaro aria. A Government washery in head at Kargali

Jharia. A Government washery is being installed at Kargali

wash the coking coals which would be raised by Government in. that area. 1.6 million tons of washed coal from Kargali will be Used in the steel works at Rourkela and Bhilai. To augment these
The Ministry of supplies, coal from Jharia will also be required. The Ministry of Iron & Steel is now exploring the best method of washing coking coals from The income will be so designed coals from Jharia. The steel works at Durgapur will be so designed. that the coals in that area which would otherwise be unsuitable for metallurgical. The metallurgical purposes would be used after suitable blending. The Durgapur Works will use Jharia coal which will be washed at the site of the steel works, blended with coal from Barakar which by itself cannot be used for steel making.

The steel works at Bhilai will use a blend of metallurgical coals which by itself is not from Kargali and Jharia and coal from Korba which by itself is not fit for metallurgical purposes.

Limestone and dolomite for the Rourkela and Bhilai works will Works, the proposal is to obtain at least in the initial stages limestone from the existing sources at Birmitrapur in Orissa.

Mention was made earlier of the utilisation of the by-products the Rourkala made earlier of the utilisation of fertilizers and other chemicale steel works, for the manufacture of fertilizers and

the steel works a number of valuable of the the carbonisation of coal which will be carried out at each by products like coal the production of coke, a number of valuable like coal the production and benzole will be facilities by products works for the production of coke, a number of valuable to the like coal tar, ammonia liquor and benzole will be at each of these works facilities released. It is proposed to set up at each of these works facilities of the minimal liquid and thereby obtain valuable and thereby obtain valuable like. for the distillation of these by-products and thereby obtain valuable which for the distillation of these by-products and thereby obtain valuable by-products are a number of industries like chemicals which form the basis of a number of industries like basis of a number of antiseptics. dyestuffs, which form the basis of a number of industries, paints, varnishes, medicines, scents and antiseptics.

TOWNSHIPS

It is estimated that for the operation of the three steel plants of the steel plants the following staff would be required:

- (i) 120 experienced engineers who would be entrusted with higher technical direction.
- (ii) 1200 qualified engineers.
- (iii) 10000 skilled workers of different categories.
- (iv) 7000 semi-skilled workers.

For the second category of qualified engineers, the problem has en one of finding the engineers. been one of finding the requisite number of experienced engineers.

To overcome this round To overcome this, young engineers, mechanical, electrical, metal-lurgical and chemical lurgical and chemical, will be sent, after some initial training, abroad for advanced assumed assume that the sent in the sent initial training, abroad for advanced assume that the sent initial training, abroad for advanced assume that the sent initial training, and the sent initial training, abroad for advanced assume that the sent initial training, and the sent initial training, and the sent initial training, abroad for advanced assume that the sent initial training, and the sent initial t abroad for advanced courses. A large number of applications been received and these been received and these are now under scrutiny in consultation with the Union Public Consultation with the Union Public Service Commission.

For the training of skilled workers, efforts are being made velop training facilities develop training of skilled workers, efforts are being made on mittee has surveyed the are training facilities within the country. A technical committee has surveyed the are training facilities within the country. mittee has surveyed the existing training facilities and expects 10 submit its recommendation. submit its recommendations before the end of April maintain augment the facilities available augment the facilities available within the country and to maining a regular inflow, after the a regular inflow, after the works come into operation, training centres will be established of centres will be established at each of the steel works.

Experienced engineers who would be entrusted with the expansion progression are very few with the expansion progression. technical direction are very few in the country. With the expansion programme of the existing of the existing the country. sion programme of the existing steel works it has not been possible nor would it be desirable to nor would it be desirable, to recruit any significant number by the employee works This is the country. With possible of people from those works This is the country. With possible of people from those works This is the made of the country. With the possible of the programme of the existing steel works it has not been possible of people from those works. This is the made of the existing steel works it has not been possible of the possible of the existing steel works it has not been possible of the existing steel works it has not been possible of the existing steel works it has not been possible of the existing steel works it has not been possible of the existing steel works it has not been possible of the existing steel works it has not been possible of the existing steel works it has not been possible of the existing steel works it has not been possible of the existing steel works. people from those works. Initially the shortage will be replaced by Indian engineers. by the employment of foreign technicians. These will be replaced by Indian engineers as they go by Indian engineers as they gain experience.

A modern industrial township is being developed at each of the ree sites to accommodate the limited that commodate the limited th three sites to accommodate the large number of workers all of modern conveniences and accommodate the large number of workers all of accommodate the large number of workers all of modern conveniences and accommodate the large number of which will have able of accommodate. modern conveniences and will be laid out such as to be required when the capacitant numbers of workers all of workers all of modern conveniences and will be laid out such as to be required when the capacitant numbers of such as to be required when the capacitant numbers of such as to be required when the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be required to the capacitant numbers of such as to be such as to be required to the capacitant numbers of such as to be such as to acommodating larger numbers of workers who would be required will be laid out such as to be required when the capacity of each of the second will be laid out such as to be required when the capacity of each of the second will be required will cost when the capacity of each of the second will be required with the second will be required to Rupees twelve to fifteen crores.

PROFITABILITY

It might well be asked why each of the plants is of 1 million as capacity. tons capacity and not more or less. A balance has to be struck between a large number of small works and one or two very big Works. If there are too many plants, then the central organisation to co-ordinate the contract of the contract organisation to co-ordinate the contract organisation the co-ordinate the contract organisation to co-ordinate the contract organisation to co-ordinate the co-ordinate to co-ordinate the activities of all would become uneconomical.

Generally: Generally, it would also require greater investment and involve higher overheads. On the other hand, one single plant of two or three nillion tons capacity would mean a heavy strain on the transport system which would mean a heavy strain on the finished produced have to carry the raw materials to and the finished products away from the works. In choosing three plants of 1 million tons capacity each, advantage has been taken of the assistance coming from the various countries in expediting the construction of the works. This apart, from a technical point of be expanded of 1 million tons capacity can with slight adaptation be expanded to produce 1.3 million tons of steel with relatively in this capacity has the minor additional investment. A plant of this capacity has the internal investment. A plant of this capacity mas and out of the of handling 6 to 7 million tons of materials in and out of the works and between departments. While the layout of each of the works and between departments. While the layout for tively and works has been so chosen that this could be done effectively and works has been so chosen that this could be been works to be works has been so chosen that this could be black works to be works to be conomically, provision has been made in the layout the capacity at each of the for the works has been so chosen the blaces works to be expanded to double its capacity at each of the product of the the to be expanded to double its capacity at each of the double its capac places so that at a later stage if it were decided to increase the

production of steel, there would not be much difficulty in doing so. the works will differ according to the capacity of and the works will differ according to the capacity of and the products. But allowing for the works of constructional materia.

Variations and the nature of the products. But allowing for in decimal in decimal decimal and the country, Variations and the nature of the products. But allowing to product, the and also in sizes and numbers of each type of equipment, the manufacturing capacity required in the country, broduce these capacity required in the country, materials and items of equipment of plant of produce these constructional materials and items of equipment of produce these constructional materials and items of equipment tons in the same nature. For a steel plant of following will be required: hillion practically of the same tons ingot capacity, the

Sili.	day ha	•		Į uc	uy,	the	foll	owing	g w	ill k	e requir	red:
Cr	clay bricks as bricks and shesite bricks and some magnesia crete for attraction f	nd e	•	•	•	•	•		•	•	45 million	pieces
48F	ome brice	silice	clay p	todno	• •	•	•	•	•	•	100,000	sq. m.
Co	estoc magneticks	and -	roduct	'S	LS	•	•	•	•	•	90,000	tons
254	oros cement social de la comenta de la comen	e bris	agnesit	e nro	d	•	•	•	•	•	40,000	tons
•	tor stands	sheets	ons 🔊	Chron	aucts	•	•	•	•	•	3,000	tons
	died ruc	tures	•		ie-m	agnesi	ite pro	oducts	•	•	13,500	tons
	rein	forcas	•	•	•	•	•	•	•	•	/00,000	sq. m.
		poor	concre	ete er-	•	•	•	•	•	•	500,000	cu. m.
				art.	uctu	es. ni	nes, e	tc			120,000	cu. m.

Asphalt concrete 40,000 tons Rails . 10,000 Railway sleepers 10,000 tons Structural steelwork 100,000 Castings 6,000 10,000 tons Pipe work 24 Nos. Locomotives . 175 Nos. Specialist rolling stock about 8,500 Nos. Electrical motors about 100 Nos. Electrical transformers about 50 or 60 Nos. Cranes of various types and sizes about 100 Nos. Machine tools of various types and sizes Of various types. Instruments .

At present the country is capable of manufacturing practically the constructional and actually steelwork, all the constructional material but very little of the steelwork, castings or equipment castings or equipment. If the industrial projects proposed for that Second Five Year Diagrams of the industrial projects proposed that Second Five Year Plan are all completed, then it is estimated that almost 80% in value of the second required almost 80% in value of the equipment and material produced for a steel works of 1 for a steel works of 1 million tons capacity could be produced within the country. The steel works of 1 million tons capacity could be produced be within the country. within the country. The balance of 20% which will have forgings, imported will consist a second seco imported will consist mainly of very heavy castings, instruspecialist machine tools specialist machine tools, some optical stores and intricate instruments.

would be approximately Rs. 360 croses. Besides there would be the capital expenditure for the capital expenditure for working new mines for iron ancillary services. stone, etc., the cost of the townships and the cost of ancillary services.

The average retention price i.e. the price which is earned by sting steel works is Re 202 existing steel works is Rs. 393 per ton of steel sold. The average controlled selling price of steel sold. controlled selling price of steel products is about a hundred RS. of to Rs. 200 more than this; while, the world market price will be over the objects of to Rs. 200 more than the average controlled selling price. of the is to sell it at the objects of producing the country's own requirements of the new steel work. is to sell it at reasonable prices. Assuming that the output of the new steel works will be sold at the sold at the output as the retention price. new steel works will be sold at about the same level as the of steel and big :retention price—say Rs. 400 per ton, the gross sale value apprentice apprentice of steel and pig iron sold by steel and pig iron sold by each of the steel works would be approximately Rs. 30 to 35 crores mately Rs. 30 to 35 crores per year.

According to the estimates of the technical advisers fuel, pelow d power, labour and power, labour, staff and maintenance, would be the low of revenue over Rs. 200 per ton. For each of the steel works, therefore, would be current expension. of revenue over current expenditure or gross profits

Rs. 15 to 20 crores per annum. Experience shows that the average life of a steel plant is about thirty years. It could be longer if the plant is maintained properly. Even assuming a shorter life of twenty to twenty-five years, a provision of Rs. 5 crores per year would be Would be more than adequate to meet the needs of depreciation in the stript. the strict sense of the term i.e., expenditure needed to maintain the plant in the same state and efficiency as it was when new. Each plant will, therefore, have Rs. 10 to 15 crores per year from its internal recommendations of the plants. internal resources, which could be used for building other plants.

These resources, which could be used for building other plants. These resources, which could be used for building outer progress of productions would amount to about Rs. 200 crores in about five years of production. By that time the cost of new plants would have become less largely because of the ability of the country to make a large portion of these. It should, therefore, be possible to build at least two plants with those 200 crores of rupees.

ANNEXURE I

-10		·	1112	w.U	KB	1.				
	I Henry		Categ	oric	:s					Demand
	Heavy rails and fish plate Heavy structure	_							(in th	ousand ton
	Heavy structurals Broad and fish plate	S	•	•	•					26
	~4 and ~	•	•	•				_		48
	4 Crossing sleepers 5 Sleeper 1	bean	15			_			•	•
	Greper L	•			_	•	•	•	•	7:
	"ACQIIIm"				•	•	•	•	•	30
	7 Deformed and prestressed 8 Rounds and flats 1/2" and	rals		•	•	•	•	•	•	170
	"OUDY" "LOSTIGESON"	i	rot- 1	•	•	•	•	•	•	510
	Rounds and flats 1/2" and	عاده ا	reie D	ars	•	•	•	•	•	, 30
1	Spring and flats below 1.	, 400V	e ,	•	•				•	780
I;		•	٠.							360
	Tinplates	•	•				_			_
/ I;	plates .	•					·	•	•	30
14	Plates	•				•	•	•	•	70
12	Wire and wire products Tool				•	•	•	•	•	150
\$6			·		•	•	•	•	•	300
17	Tool and alloy steel Stainless steel		•		•	•	•	•	•	100
\$8	Stainless steel Hoops steel	•	•		•	•	•	•	•	5
ş		•	•		•	•	•	•	•	IO
50	Hoops and box strappings Sheets and strips (hot roller	•	•		•	•			•	15
રા	Sheets and strips (hot rolled Strips Over	•	•		•	•				60
રેર	Strips upto 12"	1g	•						•	100
53	The state of the s	d) .	•		•		·	•	•	
	okelb (to 15"	•				·	•	•	•	650
	Skelp (for tubes and pipes)	•			-	•	•	•	•	60
₹4	pipes)			•	•	•	•	•	•	145
	bemine .	r.	•	•		•	•	•	•	100
	Semins for re-rollers	FOTAL	FINIS	HED	STE	EL	•	•	•	4,500
	•	•	•	•		•	•		•	700

		TATA IRON & STEEL CO. LTD.:	21			
ANNEXURE II		STEEL CO. L.TD.				Toma (V
	Tons/Ycat	I. Heavy rails and fish plates 2. Heavy structurals 3. Control				Tons/Year
Davis		2. Heavy structurals 3. Crossing sleer				
Rourkela:	200,000		•	•	•	. 135,000
I. Plates—3/16" and above	-80°000	J. M	•	•	•	. 110,000
2. Sheets and strips (hot rolled)	40.000	6. Ross and light as	•	• •	•	. 30,000
3. Strips up to 12"	100,000	5. Medium and light structurals 6. Rounds and flats 7. Spring steel	•	• •	•	. 50,000
4. Strips over 12"		8. Wi a steel	•	• •	•	297,000
	720,000	9, pi tyres and		•	•	• 144,000
		10. Blooms and above		•	•	4,000
	,	II. 61 and bin		•	•	. 30,000
BHILAI:		Sheets and strips (hot rolled) 13. Strips up to 12. Skelp (for tubes and strips are strips)		•	•	. 100,000
	100,000	3. Skelp (for		•	•	. 22,000
I. Rails, standard gauge	10.000	tubes and pines	• .		•	. 150,000
2. Rails, narrow gauge	90,000	14. Semis for re-rollers			•	42,000
3. Kailway sleeper barr	_	ocmis for rearran		•	•	. 106,000
4. Standard	284,000	· couters				1,220,000
and heavy structural sections (beams with section height up to		IMDIA.	•	• .	•	. 280,000
5. Rounds from 7/8" to 3" dia. and squares with sides from 7/8"	121,000	IMDIAN IRON & STEEL CO. LTD.: 1. Heavy rails and fish places 3. Rr.				
	15,5	1. Heavy rails and fish plates 3. Broad and po				1,500,000
6. Flats from 2" to 5" wide	620,000	Heavy rails and for				
	150,000	Heavy rails and fish plates 3. Broad and parallel a				
7. Billets for re-rolling at outside rolling mills from 2" × 2" to 3" × 3" cross-section		tallel c	•	•	•	. 100,000
cross-section	770,000	6, by the stand light standed beams	•	•	•	. 110,000
		5. Broad and parallel flanged beams 5. Rounds and flats 6. Blooms and flats 7. Sheets on billets 6	• •	• .	•	40,000
•	300,000	5. Rounds and light structurals . 6. Blooms and flats . 7. Sheets and strips (hot rolled) 8. Semis for		• .	• .	120,000
Pig iron .	ſ	strips (hot relief)	•	•	• .	160,000
Durgapur:	10,000	" Semie "	•	•	• •	10,000
		Tor re-roll-	•	•	• •	120,000
I. Heavy forging blooms	240,000	8. Semis for re-rollers				660,000
		•	•			140,000
J. A OLIVING List						
4. Sleeper bars 5. Light sections	30,00					800,000
or rorging Li	28,000					
	20,00	•				
8. Wheels and tyres	640,000				•	
	1507					
9. Billets for sale	790,000					
· · · · · · · · · · · · · · · · · · ·	7/00					i
	350,000	•				
Pig iron	/	•				8
-e non	<u>.</u>	CIPIL COLUMNIA COLUMN				
	• 🔼				•	
20		NP ON P				
		2 No.				•
		" of 18-6				
		MR of 1&S-10-4-56-1668				
		-300				