

MANGANESE ORE

— The Neglected Limb of the Steel Industry

K. Murti

AS one of the scarce materials of strategic importance and JJSQ as an earner of valuable foreign exchange, manganese ore holds a unique position on our export list. As a world supplier of *hard* high grade manganese ore; the position of India has been greatly strengthened after the virtual exclusion from non-communist countries of Soviet Russia which is the largest producer of this mineral. The world's chief sources of high grade ore are situated outside the principal steel producing countries so that in periods of rearmament and scramble for raw materials, producers of manganese ore are in an advantageous bargaining position.

Manganese has no use as a metal but as an alloy it is extensively used. It is indispensable in the manufacture of steel. Manganese steel has a high tensile strength, is exceedingly resistant to corrosion and is almost non-magnetic. The iron and steel industry is almost completely dependent on manganese for the various smelting processes involved in the conversion of pig iron into many kinds of steel. Since modern industry depends chiefly on iron and steel which, in turn, depends on manganese, manganese ore has acquired vital importance.

Manganese is also alloyed with copper and aluminium. In marine work, brasses and bronzes alloyed with manganese are largely used. Manganese is also employed in the manufacture of dry cells. Manganese dioxide has wide application in the glass, ceramic and chemical industries.

The world's leading producers of manganese ore are the USSR, India, Gold Coast, Union of South Africa, Brazil and Cuba. In the pre-war year 1938 world production was estimated at 6 million tons. India with an output of 1.1 million tons or 19 per cent of world output came second only to the USSR whose share was 2.5 million tons or 43 per cent. World output reached the peak figure of 6.4 million tons in 1940, the respective shares of the USSR and India amounting to 3.1 million tons and 1.0 million tons. However, this level of production was not maintained in the succeeding years. By 1947 world production had come down to 4.4 million tons, the USSR (2.0 million tons),

Gold Coast (0.6 million tons), India (0.6 million tons), Union of South Africa (0.3 million tons) and Brazil (0.2 million tons), contributing among themselves, four-fifths of this total. The 1948 raising was at the same level as in the previous year.

Production of manganese ore in India spurted fourfold between 1933 and 1937, from 0.2 million to 1.1 million tons. It declined, however, from 1938 onwards. As Indian production is closely correlated to export demand, after the outbreak of hostilities, the loss of European and Japanese markets coupled with the shipping difficulties resulted in a low output, the lowest figure of 0.2 million tons having been recorded in 1945. Production recovered from 1947 and reached 0.6 million tons in 1949. The trend in 1950—production being 0.9 million tons—indicates that in the coming years, production is likely to equal, if not surpass, the pre-war level. Under the prevailing conditions of mining, there is considerable wastage of low grade ores, the loss being as much as six lakh tons. If the proposals which are being considered by the Central Government for preventing this wastage by producing manganese sulphate and high purity manganese oxide from these low grade ores take concrete shape, it may not be difficult for the industry to set up a new record for production in the near future.

Madhya Pradesh is by far the largest producer of manganese ore in India and accounts for three-fifths of the total Indian production. Orissa, Madras, Bihar and Bombay are the other important producing areas, the former two states together contributing a third of the Indian production.

Production of Ferro-Manganese in India

Ferro-manganese is an alloy of iron and manganese (80 per cent manganese) and is an essential material in the manufacture of steel. The Indian production of ferro-manganese is inadequate even to meet the indigenous demand, most of the alloy required in the manufacture of steel being imported.

Ferro-manganese was first smelted at Jamshedpur between 1915 and

1947. From 1917 until the end of the first Great War in 1918 it was also manufactured at Kulti by the Bengal Iron Company. Thereafter production at Kulti, ceased and was resumed at Jamshedpur. Complete statistics of production of ferro-manganese are not available. However, some idea of the progress of the industry can be had from the production of the Tata Iron & Steel Co., Ltd., the only important manufacturers of ferro-manganese in this country. From 17,000 tons in 1947-48, their production advanced to 18,000 tons during the six month period April-September 1949. Indian manufacture being suitable for 'commercial steels' only, as it contains a high percentage of carbon and phosphorous, we have to depend on imported ferro-manganese for the manufacture of 'quality steel'. There is much scope for the expansion of ferro-manganese industry, it is believed, if electric furnaces are installed in the place of the existing blast furnace. Electric furnaces can be set up if electricity is available in adequate quantity and the various multi-purpose projects undertaken by the Central and State Governments may be expected to make this substitution feasible in the near future.

The greatest possibilities lie, perhaps, in increasing the utilization, within the country, of manganese ore in the manufacture of ferro-manganese. Indeed, it was recently reported that the Government of India had successfully negotiated with the Brainard International Corporation of the United States for the establishment of a ferro-manganese plant to smelt a minimum of 25,000 tons of ferro-manganese annually. The factory is expected to be completed by the end of 1952. Export Prospects

As the bulk of manganese ore is in raw form, the prospects of the mining industry are interlinked to overseas requirements. About 90 per cent of our output of ore is exported and only a small quantity is utilised internally for the manufacture of ferro-manganese and in various chemical industries. In the pre-war year 1937-38, Indian exports amounted to a million tons valued at Rs 2.2 crores. With the outbreak of hostilities, exports in the next few years substantially

declined the 1940-41 shipments being just half of those in 1937-38. The desperate situation in the manganese-mining industry was, to a certain extent, mitigated by the increased demands from the USA whose offtake went up to 512,000 tons in 1941-42 from 160,000 tons in 1937-38; in other words, US share in Indian exports in these years shot up from 17 to over 70 per cent. Notwithstanding substantial demands from the USA, Indian exports touched the lowest level of 157,000 tons in 1944-45, remaining almost at the same level in the next year.

With the cessation of hostilities, however, there was a recovery in the export trade and exports went up to 521,000 tons in 1947-48. Since the outbreak of Korean war, feverish activity in the American, Japanese and European steel industries has raised the demand for this scarce material. Though exports, after touching 739,000 tons in 1949-50, dropped in the following year, they are expected to reach the record level of a million tons in 1951.

In striking contrast to most other non-ferrous metals, manganese is a valuable dollar earner for India. Until recently, the United States was the principal market for Indian manganese ore, absorbing as much as 70 per cent of the exports. In 1950-51 she took 355,000 tons of Indian ore worth Rs 3.4 crores. During the pre-war years, the United Kingdom was the best customer for Indian manganese, her average offtake for 1937-38 and 1938-39 being 202,000, or 28 per cent of total exports.

From 1940-41 the share of USA considerably declined and her share in Indian shipments having come down to 13 per cent and 11 per cent in 1950-51 and April-August 1951 respectively. In recent months, Indian shipments have been chiefly directed towards Japan as no shipping has been available for American ports and during April-August 1951, Japan became the principal market for the Indian ore, absorbing a fourth of the total exports. Other important customers of Indian manganese have been France, Germany and Italy.

As regards the competitive position of Indian manganese ore in foreign markets, the non-availability of supplies from the USSR has strengthened the position of India, particularly in the US market. A third of the imports of manganese ore into the USA in 1950 and January-July 1951 was from India,

followed by the Union of South Africa, and Gold Coast. India's share in that year in the UK market was a third of the total. During the period January-August 1951, it was much less, as Gold Coast increased her share at the Cost of India. India's share in Japanese imports was about a half in 1950 and more than three-fifths in the first quarter of 1951. The table below illustrates the relative shares of the supplying countries in

the imports of the USA, UK and Japan:

Recent Trends and Prospects

Manganese ore is one of the metals included in the stock piling programme of the United States. As a result of the high level of demand for Indian manganese, the market has been witnessing boom conditions. The price of manganese ore soared from Rs 64-11-11 per ton in March 1949 to Rs 93-1-9 in

Paludrine^{TRADE MARK} prophylaxis

slashes sickness rate

Malaria has been by far the largest single contributor to the sickness rate of industrial workers. This cause of irregular attendance and debility amongst workers is virtually eliminated by regular 'Paludrine' prophylaxis. Issue 'Paludrine' to your employees every week and ensure efficient, healthy and happy workers. One tablet taken on the same day each week prevents Malaria. Special prices for bulk buyers.

a symbol  of quality



IX-P-151

IMPERIAL CHEMICAL INDUSTRIES (INDIA) LTD.

(Continued from, page 1244)

March 1950 In March 1951, it rose to Rs 127-10-8; in other words, the price in March 1951 was almost double that in March 1949. The peak price of Rs 152-8-0 was recorded in September 1951.

The USA has been a consistent buyer of Indian manganese; but the UK, Japan and European countries are also larger buyers. In view of the increasing demand and the non-availability of the Russian supplies, India should utilize her bargaining strength with a view to securing either higher prices for manganese exports or try to get in exchange for them strategic and essential goods required by her. There is no immediate possibility of a decline in overseas demand despite growing competition from the African continent and Brazil. The elaborate plans for the expansion of steel production in the USA and the high level of activity in the Japanese steel industry are likely to absorb more of Indian manganese in the coming years.

Though there has been substantial demand for Indian manganese, one of the serious handicaps in increasing exports is the transport bottleneck. If India is to maintain her foothold in the US and other markets, there should be quicker movement of manganese from the pit to the port. In fact, special steps have been taken to increase shipments which move pri-

marily to hard currency areas by running additional goods trains and by meeting the problem of higher freight rates by the introduction of station to station rates for the movement of manganese from certain stations on the H.N. Railway to Bombay.

In the long run, however, India should depend less on foreign markets for her manganese ore. She should increase the utilization within the country, in greater quantities, of the raw material in the manufacture of ferro-manganese and in other industries; and export ferro-manganese instead of manganese in raw state. But in the immediate future, so long as the scramble for raw materials in the USA, UK and other countries continue, Indian manganese is assured of a good market. In fact, to resolve the problem of the growing shortage of essential raw materials, the machinery for international collaboration which was formed in March last has set up a Manganese Commodity Committee on which India and other producing and consuming interests are represented. The task of the International Manganese Commodity Committee is to review the supply position of manganese and to recommend measures for increasing the production and ensuring the effective distribution and use of it.

North America \$1,100;
Oceania, including Australia and New Zealand \$560;
Europe \$380;
The USSR \$310;
South America \$170;
Africa \$75; and
Asia \$50.

Of the 57 countries surveyed, 12, with a combined population amounting to 31 per cent of the total for this group, are classified in the report as having per capita incomes below \$100 in 1949.

These countries include Burma, Ceylon, the Dominican Republic, Ecuador, India, Iran, Kenya, Northern Rhodesia, Pakistan, Paraguay, the Philippines and Thailand.

In the \$00 to \$200 group are: Brazil, Bulgaria, Chile, Colombia, Egypt, Greece, Japan, Mexico, Peru, Southern Rhodesia, Spain, Surinam, Turkey and Yugoslavia.

Per capita incomes run from \$200 to \$300 in Austria, Cuba, Hungary, Italy, Puerto Rico and the Union of South Africa; from \$300 to \$450 in Argentina, Czechoslovakia, Finland, Germany (Western), Ireland, Israel, Poland, USSR and Uruguay.

In Belgium, France, Iceland, Luxembourg, the Netherlands, Norway and Venezuela the per capita incomes range from \$450-\$600.

In the highest group, \$600 to \$900 are Australia, Canada, Denmark, New Zealand, Sweden, Switzerland and the United Kingdom. The United States is the only country with incomes per head exceeding \$900.

According to the report, the United States is by far the largest recipient of investment income from overseas. In 1948 net receipts amounted to \$971.8 million. Next comes the United Kingdom, with an income on overseas investments of £110.4 million (approximately \$325.9 million).

Jute Manufacture in Pakistan

The Chairman of the Pakistan Jute Hoard and Pakistan Development Corporation Mr G. Faruque, disclosed at Dundee on November 29 that Pakistan had already placed orders in Britain for 3,000 looms with a view to starting jute manufacturing in Pakistan. Negotiations for another 3,000 looms, involving an expenditure of about £3,500,000 were in progress. Pakistan's target was 15,000 looms in 10 years.

Relative Shares of Supplying Countries in Manganese imports in UK, USA and Japan

Country of Origin	Imports into					
	USA		UK		Japan	
	per cent	per cent	per cent	per cent	per cent	per cent
	1950	1951	1950	1951	1950	1951
	Jan.-July		Jan.-Aug.		Jan.-Mar.	
Gold Coast ...	19.1	18.7	50.5	53.3	—	—
Union of South Africa ...	24.7	25.2	11.1	17.2	—	—
India ...	32.5	33.1	32.8	28.7	48.3	64.7
USSR ...	3.3	0.2	—	—	—	—
Philippine Republic ...	0.3	0.7	—	—	43.5	—
Cuba ...	4.9	6.3	—	—	—	—
Brazil ...	6.7	4.0	—	—	—	—
Mexico ...	1.7	3.3	—	—	—	—
Egypt ...	—	3.7	—	—	—	34.0
Other countries ...	6.8	4.8	5.6	0.8	8.2	1.3
Total ...	100	100	100	100	100	100