Chapter 10

DISTRIBUTION OF IRON ORES IN INDIA IN ITS BEARING ON THE DEVELOPMENT OF THE IRON INDUSTRY IN ANCIENT INDIA

The distribution of iron ores in India (fig. 17) has indeed a bearing on the mining and smelting operations at different times and indicates the possible geographical extent of the areas where the industry could have developed at an early date. All the ores are not uniformly workable or commercially profitable. To-day hardly any ore that contains less than 50 percent of iron is considered suitable for commercial use. In the early stages, however, such consideration would not have decided the early endeavours, though experience would have led to the localisation of industries in the neighbourhood of rich ores, where also charcoal was available in its raw form of the forests as mentioned before.

Though the principal minerals of iron comprise Magnetite, Haematite, Turgite, Geothite, Limonite, Siderite, Pyrite, Pyrrhotite, Ilmenite, Greenalite and Chemosite, the Indian ores are broadly divisible into three classes, or groups.
The first group consists of the ferruginous formations of the Pre-Cambrian Age, which in the unmetamorphosed state comprise haematite jaspers and in the metamorphosed state are in the form of magnetite-quartz.

The second group includes the sedimentary iron ores of siderite or limonitic composition, occurring in Bengal, Bihar and parts of the Himalayas and Assam.

The third group represents the lateritic ores found almost all over India. These are the sub-areal modification of gneiss, schists and lavas, under humid tropical conditions. These occur in the Deccan, Western Ghats and many other places. Because of their low (25 to 35 per cent) content of iron, these ores are not yet commercially exploitable.

Though the richest deposits of iron ores in India occur in Bihar, Madhya Pradesh, Orissa, Maharashtra, Mysore and Madras, there are some ores also in such outlying areas in the north as Kashmir, Patiala (Panjab), Mandi (Himachal Pradesh) Kumaon Hills (Uttar Pradesh) and Assam. The ores of Kashmir are not considered important. The ores of Patiala, occurring in the Nurnaul District comprise both haematite and magnetite. The Mandi ores are contained in the Magnetite-quartzes. The Kumaon ores include both limonite and haematite.
There are both Magnetite and Limonite in the Jaintia Hills of Upper Assam.

The deposits in Patiala and Mandi are, however, included among the more important ores in India, and should have played an important role in the development of the industry in the region. There are quite a few mines in Rajasthan as well, which have been worked at various times, and the ores of which have been smelted in the indigenous furnaces, as at Rajgarh in District Alwar.

It is, therefore, clear that the deposits near Narnaul in Patiala and in Mandi mark the northernmost major deposits known in India. It is not unlikely, however, that more deposits in the hitherto unexamined on inadequately explored areas would change the complex of metallurgical advancement of India, besides strengthening the possibilities of still earlier workings of iron, if any, in ancient India. On the present showing, however, it can be hazarded that it would have been scarcely possible for the Aryan settlers of India to have started the manufacture of iron objects, until not only they had reached the area but discovered the rich deposits of the ores of Narnaul. One means of relating the industries to the nearest sources of ores would indeed be to analyze the ores spectrophotographically comprehensively as also the ores, so that a connection, if any, may be established between the finished products and the ores. This task, alas, has not made much progress in India.
The rich ores of south India are surely to be considered responsible for the prolific and extensive occurrence of iron equipments in the megalithic and associated remains all over peninsular India. It would be an interesting study indeed to subject the iron objects from the various megalithic tombs to spectroscopic analysis and relate them to the ores, and by examining and exploring the sources of the ores as well, greater details than are at present available as to the processes of iron workings in south India in the days of the megaliths may be forthcoming. This would possibly throw more light on the iron workings in ancient times.

The south Indian deposits which have indeed played an important role in the development of iron industry in India, several centuries before the Christian era, and their distribution deserve to be mentioned and are indicated below.

Magnetite occurs chiefly in the southern districts of Mysore. Haematite occurs in Shimoga, Chikmagalur and Dharwar, in Mysore, Sandur in Madras and Ratnagiri in Maharashtra. Magnetite quartzes occur in the districts of Salem and Tiruchirappali (Trichinopoly) in Madras and Guntur in Andhradesa. Haematite and ferruginous quartzes occur in Cuddappah, Andhradesa. Ironstones (limonite and haematite) occur in Travancore and Malabar in Kerala.