



THE IRONWORKS OF THE PHARAOHS

By CHAS. W. VINCENT

Copper and its alloys were held in high favour with the earliest civilised nations of the world long after the discovery of iron, and even after it began to be really utilised—of this there can be no doubt. The bronze age in every part of the old world preceded the iron age. The change was not, however, a rapid one; the replacement of copper by iron was gradual, and in this country did not take place for many centuries, perhaps decades, after its introduction and general use in the East—the birth-place of material civilisation, as well as the starting-point from whence has swept over the world, as with a mighty wave, those aspirations for better and more lofty things, from which will proceed all that is moral, intellectual, or noble in man as he now is, in whatever part of the globe, or under whatever conditions of life he may be.

I think, however, that we are apt to date the use of iron at too late a period, we are too ready to take the tardy civilisation of the north of Europe as being the origin of all our present knowledge, and to ignore the fact that in the East and South were nations possessing, thousands of years before that time, an intellectual vigour, it may be even in excess, of the average of our age. The comparative endurance of the metal's iron and copper may also have helped this mistake. As soon as it came into general use iron would be much less costly than copper, and, consequently, would not be preserved with so much care, so that, being very readily oxidizable, few implements or weapons can remain to us, except where they have been kept from access of air. Hence the comparative abundance of copper and bronze articles, and the paucity of iron may have been much misconstrued. Stone chisels, tools for wood cutting of all kinds, knives, &c., were made of an alloy of copper and tin.

On the testimony of Homer, Thrasylus and others, iron was in use long before the Trojan war. In the Bible, Tubal Cain is named as "the instructor of every artificer in brass and iron," but, nevertheless, no mention is made elsewhere of iron weapons or implements till after the exodus. Iron rings have also been frequently discovered in Egyptian tombs. Moses compares Egypt to an iron furnace (Deut. iv. 20), and Job speaks of smelting processes (xxviii. 2): "Iron is taken out of the earth, and brass is molten out of the stone." From the foregoing it appears, in spite of the arguments of the difficulty of smelting it, and rendering it malleable, adduced against the early use of this metal, that it was largely in use at a very early period.

In 1822 Mr. Burton discovered an iron mine at Hammami, between the Nile and the Red Sea, which had been worked by the Egyptians. Kenrick states that in the sepulchres of Thebes he has remarked butchers sharpening their knives on a round bar of metal attached to their aprons. The blue colour of the blades, and the distinction between the bronze and steel weapons in the tomb of Rameses III., one being painted red and the other blue, leaves no doubt but that the Egyptians of an early Pharaonic age were acquainted with the use of iron.

The neatness and finish with which the hieroglyphics are sculptured on obelisks, and other granitic monuments, may also be adduced as strong arguments that the workmen must have been possessed of steel chisels, quite as finely tempered as any we at present can manufacture.

The amount of metallurgical skill the first smelters possessed was not very great; probably much more pains were bestowed on the manipulation of the metal after they had obtained it in a crude state, than upon getting a fair return from the ore smelted. As in this country at the beginning of the present century, the waste heaps at the mouth of lead mines were eagerly reworked to obtain the lead and silver which our ancestors had failed to extract; so the Egyptian mines of silver, gold, and iron, may probably, ere long, be hunted for, and the debris from them prove a treasure trove to those who are so fortunate as to hit upon them.

An intimation that something of this kind is even now being done was made at a recent meeting of the Society of Antiquaries. Mr. Hartland described his visit to the wells of Moses by the Red Sea, the Wilderness of Sin, and the monotonous three days' march across the sandy desert, under a vertical sun, to the delicious palm-tree groves of Wady Cherundel, and the defiles leading to Siuni.

An English gentleman, whose name is withheld, travelling in these parts, was struck with the small blue stones he discovered in the dried up watercourses, which in the rainy season convey the thousand streams that hurry to the sea, and, having the curiosity to bring some home, he soon discovered that they were turquoises of no common order.

This determined him to make further researches. Eventually he has built a house near the junction of the Wady Kenuch, the Wady Mokatteb, or the Written Valley, and the Wady Megham. Here, aided by the friendly tribes he has taken into his pay, he has discovered the old turquoise mines of the ancient Egyptians, the rocks that they worked for the stones, the very tools they used, and their polishing and grinding places.

Being a man of much energy, he has brought to bear upon this fortunate discovery, the advanced knowledge of our times, and he is obtaining and sending over to this country some of the finest specimens of turquoises that exist.

In such a lonely spot, he naturally has not confined his attention to this subject only, but has traced out the system of fortifications by which the Pharaohs protected their works and workmen, and, what is still more wonderful, has come upon the remains of vast iron works, so vast indeed, that many thousand people must have been employed upon them, unless the plant used was on quite as grand a scale as that of our largest furnaces in the north of England.

These works stand adjacent to the mines, on some hills at a place called Surabit-el Khadiu, and were evidently conducted on the Catalan system (in the opinion of their discoverer). The ore was very imperfectly extracted—slag brought over to this country, from the immense heaps that, like mountains, are piled around, contained as much as fifty-three per cent. of iron.

These works were commenced in very early times: each Pharaoh, as he continued them, added a large engraved stone, not unlike our tomb-stones, to state his work. It is to be hoped that rubbings of these stones may be sent to some of our skilled readers of hieroglyphics, since much valuable historical information respecting the Egyptian metallurgy may have been by them preserved for our enlightenment, and