Book review

Huelva report throws new light on Spanish mining history

A major contribution to the understanding of the history and development of mining and metallurgy in the ancient world is provided in a new IAMS publication expected soon (Beno Rothenberg and Antonio-Freijeiro Blanco, Studies in Ancient Mining and Metallurgy in South-West Spain).

Basically, the book is a report of the findings of an expedition which explored sites in Spain’s Huelva Province between 1974 and 1978 under a project set up by Seville-Madrid Universities and the Institute for Archaeo-Metallurgical Studies, London. The co-authors — Professor Rothenberg, director of IAMS, and Spain’s leading archaeologist, Professor Blanco, of Madrid University — directed the investigations which were carried out by teams of scientists working all over the central part of the great Iberian pyrite belt.

Their survey, backed up by detailed analytical and metallurgical studies, has provided the foundation for a new history of metal production in this part of the world. Early Copper Age (4th-3rd millennium BC) mines and mining tools, the earliest of Western Europe, were discovered, and Rio Tinto now appears to be the oldest mine in the world still in operation. It was originally opened by indigenous people and worked by them during most of the ancient periods. Contrary to previous supposition, the sophisticated metallurgy of South-West Iberia can now be seen as a local development without any interference from outside.

Case study

The overwhelming importance of metal in the history of the province is indicated by the very scale and extent of the remains since early chalcolithic times, and in this sense Huelva can serve as a model par excellence for the study of metal in history. The authors are at pains to point out that it was no purpose of the project to produce anything like a complete historical and geographical picture of the province. Its aim was more to present a profile of the history of its metal production and its manifold implications for the complex ethnic, social and geopolitical development of the area. This is a first, and in some respects, still rather tentative synthesis, which may have to be amended by future discoveries and excavations of key sites.

However, it should be remembered that previous surveys in the Arabah and Sinai succeeded, by the very accumulation of detailed information from a large number of sites, in producing a valid picture that has not changed in its basic concepts by subsequent excavations.

Huelva’s “new look”, presented here, is therefore painted against a background of factual evidence — on archaeological finds (buildings, pottery, flint implements, coins, tools etc.) and, parallel to it, extractive metallurgical findings (mining technology, smelting products and waste, and the logistics of the operations).

Copper was the first metal used in Iberia, and its production had primitive beginnings: crude trench mines in quartz outcrops, and malachite veins roughly hammered out with grooved pebble-tools fitted with wooden handles.

Earliest yet

The chalcolithic smelting sites in Huelva are the earliest found to date in south-western Europe and, like their contemporaries in the Arabah, the local metallurgists in constructing their hole-in-the-ground bowl furnaces and preparing their charges, achieved almost the optimum principle of copper smelting in use throughout history.

No permanent habitation sites of Copper Age date

Sardinia

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the Bronze Age nuragic populations.

Combined with increasing evidence for early interaction with Mycenaeans and Phoenicians, the team’s finds support a concept of Sardinia as an emporium after 1200 BC, in dramatic contrast to the notion of withdrawn isolation held only a decade ago.

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were found in the Huelva survey, and a small excavation at Chinflon indicated only temporary dwellings in tents or huts near the mines. However, a group of dolmen, located near Chinflon, strongly suggests that these were the burial places of the first miners and metallurgists of the province.

The arrival of Republican Rome in Huelva did not cause any fundamental change in local mining activities, but the picture changes dramatically with the beginning of the Roman Empire under Augustus. In the early 1st century AD, many new mines were opened up and many active small mines were expanded into large-scale workings.

The famous Roman shaft-and-gallery system was now generally applied and made possible the intensive exploitation of the rich silver and copper ore deposits. It came as a surprise to the explorers to discover that nearly all the presently operating, and most of the old abandoned, copper mines of Huelva had previously been worked in Imperial Roman times and had produced silver as well as copper.

Millions of tons of ore, fluxes and slags and enormous quantities of charcoal were involved in the operations at this time. The Romans had also to cope with the very complicated logistics of feeding their labour force in remote mountainous areas, where few crops grew; drinking water was scarce, and large numbers of miners had to be housed.

All these make it difficult to accept the often-propounded view that the Roman mines in southern Spain were run by companies formed by private capitalists or contractors. Such economic systems may have worked during the Republican period, but at the huge industrial sites such as Rio Tinto, it seems far more likely that the operations were soon placed under state administration and technical management.

The book, which is being printed in Spanish as well as in English, is the first in an IAMS series, Metal in History, which aims to publish definitive reports of archaeo-metallurgical research in the major centres of ancient mining and metal production. The present volume is distributed by Thames and Hudson, 30-34 Bloomsbury Street, London W1, price £18.

Chinese excavation

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tons of copper were extracted before the digging was abandoned, for reasons yet to be investigated, though it is probable that it was flooded by a great influx of water.

Seventeen of the smelting furnaces unearthed belong to the Song Dynasty (960-1279 AD). Bowl furnaces, which show signs of repeated fettling, were used, with hearth of about 37 cm diameter and a tap-slot at their lower part.

A number of other ancient sites in the nearby hills remain to be explored.

The Aims of IAMS

The Institute for Archaeo-Metallurgical Studies was formed as a charitable organization in 1973 to provide support for, and co-ordinate the work of, international research into the development of mining and metallurgy from earliest times.

Its formation was a direct consequence of successful expeditions made in the Near East during the previous 15-20 years by teams of archaeologists, metallurgists and other scientists, who explored the deserts which stretch from the Mediterranean to the Red Sea. Since then, researches have expanded into Western Europe where project teams have been making discoveries which, though not only significant in mining and metallurgical history, but are also providing new and interesting information for others concerned in the study of early cultures and the development of industry and international trade in ancient times.

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