

CONFERENCE REVIEWS

Iron for Archaeologists, Plas Tan y Bwlch, Snowdonia National Park Study Centre, 27th-30th October 1995

Gwyn Davies

Institute of Archaeology, UCL

This conference, organised by one of the leading exponents of experimental iron-making, represented a long overdue treatment of a metallurgical tradition that has suffered from a surprising lack of academic interest, particularly in this country. Accordingly, this drawing together of a broad spectrum of practitioners and amateurs and the participation of a significant Continental contingent, promised to provide a welcome corrective to the prevailing insensibility.

Gert Magnusson (University of Stockholm) started proceedings on Friday evening with an overview of iron production and technology, from the first appearance of the metal as a prestige item in gift-exchange networks, to its mass-production during the Industrial Revolution. Of particular interest in this sweeping summary was the emphasis given to the contingent social aspects, which are often ignored in a welter of technical detail. The move towards a collectivisation of the workforce in thirteenth-century Sweden, and the establishment of a new class of wealthy iron founders in direct competition with the land-owning aristocracy in eighteenth-century England, might suggest that the evolution of the industry has more to offer than a simple chronicle of technological advances.

We were then treated to a fervent introduction to the world of ore and slag delivered with a crusading élan by Gerry McDonnell (University of Bradford). Despite an exaggerated claim that the development of iron technology universally allowed craftsmen to surpass all previous achievements (how about Inca stonemasons?), this radical lecture proved both stimulating and informative. We were advised that the exploitation of bog iron deposits was far more important than that of conventional ore, particularly in the early period, and that furnace typologies proposed in the past were merely an academic distraction when compared with the crucial elaboration of a slag typology. Notwithstanding such controversial forays, Dr McDonnell provided a rapid and easily comprehensible synopsis of the main production processes, a contribution that must have been gratefully received by the uninitiated in the audience.

The Saturday morning session witnessed six presentations covering current fieldwork projects in Britain. Norman Redhead (Greater Manchester Archaeological Unit) provided an interesting starting point with his treatment of a medieval smelting complex on Saddleworth Moor, whilst Jane Cowgill (Lincoln Archaeological Unit) gave an entertaining account of a torrid four days spent in the rescue excavation of a 30m diameter Romano-British slag dump in South Lincolnshire. Frances Griffith (Devon County Council) and Peter Weddell (Exeter Archaeology) introduced us to the enormous potential of the Blackdown Hills, and hinted at the systematic exploitation and production of iron under Roman military supervision in the early post-Conquest years. Central themes for all these speakers included the difficulty of obtaining adequate funding for excavations and the remarkably cavalier attitude displayed by many 'professional' archaeologists to the correct identification of the by-products of past iron-working activities.

The pursuit of regional and national survey strategies formed the *leitmotif* for the next three speakers. Peter Halkon (Universities of Leeds and Hull) emphasised the role of the riverine landscape of E. Yorks. in determining the incidence of sites, and Eric Instone (Lancaster University Archaeological Unit) introduced the various geological regimes governing the characteristic formation processes of different iron 'types', a necessary explanation in view of his sampling strategy and selection criteria for the preparation of a list of 'nationally important' iron-mining sites on behalf of the RCHME. An equally informative insight into the workings of a regionally-devised strategy was furnished by the RCHME's Mark Bowden, whose Furness Survey promises to garner a wealth of data on the important iron-working area of W. Cumberland. Even more gratifying perhaps was the ready recognition of the experienced assistance provided to this 'official' project by members of the Historical Metallurgy Society, and the eager solicitation of further advice which might lead to the modification of the methodology and objectives of this valuable research work.

Further submissions followed the early afternoon excursion to Bryn y Castell hillfort, completely excavated over seven seasons by our host, Peter Crew, under the auspices of the National Park. These included a discussion of the role of iron-working as a stimulus for urban expansion in thirteenth-century Gwent (Raymond Howell - University of Wales), and the identification by field survey of an elaborate system of leats, dams and header tanks to power the medieval iron industry of Bishopdale, N. Yorks. (Stephen Moorhouse). Peter Crew then provided a succinct summary of his ten seasons of excavation at Crawcwellt West, a late prehistoric iron production centre in upland Gwynedd, the ramifications of which should prompt questions to be asked over the failure to identify analogue sites in lowland Britain.

A series of seven short papers were presented in the evening session (who ever said conferences were a doddle?), which served to introduce current research in the field and which ranged from the 'hard' chemistry of Assumpta Vizcainos' (University of Bradford) analysis of the reducibility of phosphoric ores, to a cautionary tale from David Starley (English Heritage) as to the shocking degree of iron-working debris that can slip through the sorting process to end up mis-labelled or, worse still, on the spoil-heap!

The programme for Sunday concentrated upon work carried out abroad, with Lars-Erik Englund (University of Stockholm) commencing proceedings with an account of Vendel-period and Viking Age bloomeries in south-west Sweden. Although the speaker attacked pointless furnace typologies as unnecessarily restrictive conceptual frameworks, he was at pains to stress the need for a standardised terminology to ensure consistency in the description of furnaces in excavation reports. He also was concerned to build upon Gerry McDonnell's contention of the previous day that a slag typology was, on the other hand, a worthwhile pursuit. Gert Magnusson then provided us with a general overview of iron-working sites in Sweden, and demonstrated an interesting correlation between production peaks in disparate areas and clusters of ^{14}C -derived dated samples.

Moving south, Ludwig Eschenlohr (Bureau du Patrimoine, Porntruy) outlined recent fieldwork in the Swiss Jura which has led to the classification of various forms of bloomery sites, and Hervé Laurent (Service Régional de l'Archéologie, Besançon) gave us an insight into survey work in Franche-Comté, including his suggestion that metallurgy in the area may have been concentrated during the Merovingian rather than the Gallo-Roman period.

The afternoon fieldtrip to Medieval bloomery sites in Coed-y-Brenin was

followed by Javier Larrazabals (University of Salamanca) introduction to the use of historiographic material as an aid to field-survey (as illustrated by monastic records from Zamora province, Spain) and by the Institute's very own Gill Juleff, who presented the results of her work in Sri Lanka. At the risk of sounding partisan, it is this reviewer's opinion that this latter lecture proved to be the highlight of the conference, with its account of the discovery and replication of a previously unsuspected wind-powered iron-smelting process. The dramatic imagery captured on film and the fluency and conviction of the presentation, made this a fitting finale to the series of extended 'flagship' lectures.

The final evening session traversed a broad range of topics in six short papers, from Peter Haarer's (University of Oxford) re-interpretation of certain Greek 'currency bars' as roasting spits, to Ludwig Eschenlohrs account of trenching techniques along the route of a proposed motorway in north-west Switzerland, where, astonishingly enough, despite the excavation of 1400 trial trenches, the 16 sites actually recovered were mostly located via alternative forms of fieldwork!

The final day's proceedings were transferred to the experimental area at the rear of the conference centre, where Peter Crew and his experienced team carried out their seventieth experimental smelt as part of an all-day demonstration of the reduction and refining process. Despite a technical hitch at the start which caused the furnace to run at an excessive temperature, and the need to provide tangible evidence before the departure of certain long-distance delegates, the experiment was an impressive testament to the sheer hard labour involved in producing a 770g refined billet from 10kg of siderite. Throughout the day the demonstrators were eager to explain the processes involved, and were patient enough to answer any questions raised, however uninformed!

In conclusion, the organizers must be thanked for having provided a balanced (if intensive) programme which succeeded in enthusing non-specialist participants and in engendering a working knowledge of production processes and their residues, which will no doubt serve to inform many future excavations. It would also be fair to compliment the facilities furnished by the Snowdonia National Park Study Centre, which greatly contributed to the air of relaxed informality that characterized proceedings, lending the same the distinctive quality of a workshop seminar rather than the sometimes stilted ambience of many an 'artificial' conference.