

Jewellery Studies

Book Reviews



Les ors de l'Europe Atlantique a l'Âge du Bronze : technologie et ateliers *Bronze Age gold work of Atlantic Europe: technology and workshops*

Barbara Armbruster, 2021

Reviewed by Susan La Niece

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Les ors de l'Europe Atlantique a l'Âge du Bronze : technologie et ateliers

Bronze Age gold work of Atlantic Europe: technology and workshops

Barbara Armbruster (2021) Language: French

Mémoire LIV, Chauvigny: APC. 299 pages, hard cover: illustrations (colour and black and white), 31 cm.

ISBN: 979-10-90534-64-3 ISSN: 1159-8646 25 €¹

The author of this large, lavishly illustrated book is an experienced practising goldsmith and archaeological scientist, based at the University of Toulouse. The geographical area covered in the book consists of the westernmost regions of Europe, with access to the Atlantic, which in modern day terms encompasses principally Great Britain, Ireland, France, Belgium and the Atlantic coast of the Iberian Peninsula. The time-frame is the period of exploitation of easily accessible alluvial gold (eroded from the primary rock and found in streams and rivers as grains and nuggets), beginning in the mid to late 3rd millennium BC and continuing until well into the 1st millennium BC. This period extends from the interesting early development of gold working through to the beginnings of the use of iron later in the 1st millennium BC.

The interdisciplinary approach

As the author points out, the dating of these gold items is often difficult and much more work needs to be done, but she provides a useful summary/concordance of the current dating of the archaeological phases, compiled from recent published research from Ireland, UK, France/Belgium and the Iberian Peninsula.

The introduction to this study of prehistoric gold work outlines the interdisciplinary approach of the research. This includes a discussion of how the gold was worn and used, the evidence for a link between gold and social status and for its spiritual significance. The tools of early goldsmiths are rarely found and perhaps also rarely recognised from the buried evidence but study of the original surfaces at high magnification can often reveal tool marks, providing much information about how the forms were made and the type of tools used. Ethnographic parallels and experimental replication using tools and materials available to the Bronze Age craftsmen in collaboration with traditional artisans today are both avenues that are fruitfully explored. The scientific approach using optical microscopy, Scanning Electron Microscopy, radiography and metallography gives much information on the

casting, forming and joining techniques employed and produces beautiful and informative images. Element analysis and modelling add further dimensions. The records of goldsmithing practices seen on Ancient Egyptian wall-paintings and surviving from Classical, Renaissance, Medieval European and Central American illustrated manuscripts are considered. These, however, are rarely authored by the practising artisan, so misunderstandings of the processes observed can be expected.

The goldsmith – his skills and his workshop –

This section discusses the Bronze Age goldsmith: was he itinerant? What was the artisan's role in these communities? An introduction to the properties of gold and the colour of its alloys leads on to a discussion of workshop requirements. No Bronze Age gold workshops have been identified in Western Europe but this chapter puts together available information to paint a picture of what a goldsmith's workshop might look like. A wood charcoal fire with a good draft can reach the temperatures required for melting gold. There are some instruments of measurement known such as touch stones to test the quality of the gold and a balance to weigh the metal. Evidence for compasses can be seen on some finished items and the use of crucibles and bellows are discussed. The earliest gold work is made from alluvial gold, a naturally occurring gold-silver alloy (with other elements as minor impurities). Not until later in the Bronze Age was some deliberate alloying carried out, enabling the use of lower melting temperature gold solders. The book illustrates stone hammers and anvils and a range of archaeological finds of bronze tools including anvils, doming blocks, chisels, points and punches. These are bronze workers' tools rather than the finer tools required for gold working, but do give a feel for the techniques used by metalworkers of the period. Armbruster has published extensively on the use of simple bow-driven lathes to cut circular forms into wax models

¹ https://www.chauvigny-patrimoine.fr/Editions/fiche_memoires.php?sku=MEM054



Bronze doming block and punch.
Musée d'Archéologie National,
Saint-Germain-en-Laye, France.



Gold bracelets, Museo Arqueológico
de Villena, Spain.

for lost-wax casting and bow drills.² The finishing processes and abrasives are discussed, and decoration with chasing, chisels, punches and abrasion, but not with engraving. Wire making, mechanical and hot work joining techniques are all illustrated. The chapter concludes with a short catalogue of what Armbruster views as misinterpretations of how some jewellery items were made in the Bronze Age.

² For example: Armbruster B. 2018. 'Rotary motion in Iron Age gold work – annular ornaments and their decoration', in Schwab, R., Milicent, P.Y., Armbruster, B. and Pernicka, E. (eds) *Early Iron Age gold in Celtic Europe: society, technology and archaeometry*. Proceedings of the International Congress held in Toulouse (2015) Rahden, pp 231-54; Perea, A. & Armbruster, B. 2008. 'Rotary tools and techniques for gold metallurgy during the late prehistory in the Iberian Peninsula'. *Historical Metallurgy* 41/2 pp 95-104

Right: Gold lunula. Musée d'Archéologie National, Saint-Germain-en-Laye, France.

Below: Detail of the decoration.



The gold objects

The largest portion of the book is devoted to an extensive survey of the surviving Bronze Age gold articles, ingots, cups and bowls and, of course, the many types of jewellery from collections in Ireland, Portugal, Spain, England, Scotland, Orkney, Switzerland, Denmark, France, Belgium and Germany. This is well illustrated with photographs and drawings. The gold jewellery includes the so-called sun discs, beads, lunulae, basket earrings, rings, bracelets, diadems, neck rings and gorgets, the stunning gold collars from Ireland. The largest of the decorative, possibly wearable, gold items is the highly embossed, elegant cape from Mold, north Wales and the extraordinary Late Bronze Age cones, one from France and three found in different areas of Germany/Switzerland. These tall cones are formed from a single piece of sheet gold, like a tall, thin witch's hat, beautifully embossed and are of uncertain use, but their importance to the people of the period is unmistakable. The jewellery of the Middle and Late Bronze Age features large numbers of annular ornaments, from massive neck rings to bracelets, rings, earrings, penannular rings potentially for the nose, many striped in two colours of gold (Meeks et al. 2008), hair and dress pins and other fasteners. An interestingly varied list of other materials such as amber, jet and wood, was used in combination with gold in jewellery-making, and in the later period bimetallic gold jewellery with copper, bronze and iron began to be made. Of course these many forms of jewellery were not being made in every part of Atlantic Europe and occurred at different points during the long time-span of the Bronze Age. In Figure 224 the author provides a helpful concordance of the jewellery forms, where they were found and at what periods, as well as a summary of their techniques of manufacture such as hammering, lost wax casting and decoration.

With the introduction of iron, the lavish art of the Atlantic gold jewellery ceases in Britain and Ireland, perhaps because of shortages in gold supply, but also because of the profound

changes in societies in the course of the second quarter of the 1st millennium BC with use of iron. In France, precious metal jewellery and vessel making developed to new heights in the Iron Age Hallstatt cultures around 500 BC, with massive forms and complex and very fine decoration. In Ireland and Great Britain it was not until much later in the Iron Age that gold made a significant reappearance, for example in the huge deposits of torcs (neck rings) at Snettisham.³ In the Iberian Peninsula, unlike in the other Atlantic areas, the jewellery styles move in several directions, one of which was the Orientalising style, using new technologies of solder, granulation and filigree work influenced by the eastern Mediterranean.

Technique, technology and society

This short chapter is a strong statement of the philosophical basis of the research presented in the book. Armbruster decries the approach that technology (defined as all the stages in goldsmithing, from extraction of resources to finished piece) is treated as purely functional and separated from typology in an art historical context, in other words, the separation of artisan and artist in the academic repertoire. She argues for a holistic approach, encompassing the collaboration between different specialisms - archaeology, social anthropology, ethnology, conservation, science etc. - to fully understand the role of technology, artistry and function in the creation of jewellery in the distant past, the *chaîne opératoire* of its manufacture, its use and its final removal from circulation. Directions for

³ The long awaited volume on this extraordinary site in north Norfolk is to be published soon - Farley, J. and Joy, J. (eds) forthcoming.

The Snettisham Hoards, British Museum Research Publication no. 225



Gold torc from Sintra, Portugal.
British Museum1900,0727.1

future research are touched on, with new discoveries changing perceptions. Much is still to be understood about how skills and knowledge were transferred in the Bronze Age within the large area defined as Atlantic Europe, whether by movement of objects, of ideas or of people.

The focus of Armbruster's research is on the goldsmiths' techniques and what clues from study of the gold jewellery can tell you about groupings/workshop characteristics, status and social relationships and the questions of how and why the people of Bronze Age Atlantic Europe made objects of gold. The study is interdisciplinary, benefitting from her training both as a practising goldsmith and as a scientist, utilising techniques such as microscopy, chemical analysis and X-radiography to study ancient metalwork. The bibliography is extensive, with listings of ancient sources as well as references to contemporary, international research publications.

The book is lavishly illustrated with original photographs, taken by the author, of the outstanding gold jewellery and other artefacts of the period, accompanied by high magnification details of the workmanship and drawings to illustrate techniques of making. It is scholarly but accessible, the main limitation for many English readers being the French language. The publishers have been seriously negligent in failing to provide summaries in English, Spanish and Portuguese, bearing in mind the international nature of the material in this book.

However, do not be deterred, it is a book that is unique in having excellent images of jewellery from more than twenty Europe-wide museum collections and as such is invaluable for all with an interest in the first developments of gold jewellery. It should be added that the designs and techniques are timeless.

Susan La Niece

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