

Book reviews

ROBIN BRIGAND & OLIVIER WELLER (ed.). *Archaeology of salt: approaching an invisible past*. 227 pages, numerous b&w and colour illustrations. 2015. Leiden: Sidestone; 978-90-8890-303-8, paperback €34.95.



This useful volume contains 12 articles on various aspects of salt archaeology, covering general considerations of production methods and a range of contributions on different countries

of Europe, South America and Japan. The editors are well known from salt literature as researchers on Romanian salt, or, in the case of Weller, salt throughout the world. It is this global perspective that gives the volume its usefulness, although there are plenty of specifics relating to single countries in the individual chapters. The chronological range is also large, from modern salt-working in China and Romania, to Neolithic and Roman exploitation in different parts of Europe.

The opening chapter, by Pierre Gouletquer and Olivier Weller, provides a fascinating overview of production techniques, including the extraordinary method used at Zigong, Sichuan province, China, where bamboo drills penetrate hundreds of metres deep, the resulting brine being ‘washed’ with soya milk—a process believed to accelerate the purification process. The long experience of these authors in various countries, notably Papua-New Guinea and West Africa, gives an unrivalled insight into the technical variations that have been adopted at various times and places. In similar vein, Weller provides a global overview of salt-production practices, material on which he has worked for many years.

Several contributions discuss salt-making in Roman times, a topic that is generally under-researched. The ancient authors give rather limited information; Pliny (*Natural History* book 31) is frustrating for his lack of indication about exactly how and where ancient Italy obtained its salt, yet it is clear that Rome and the Etruscan cities practised salt-making on

the Tyrrhenian coast. Here, fieldwork has produced some information in recent years, and Maria Cristina Grossi and colleagues present the results of work at Le Vignole-Interporto in the Tiber delta between ancient Ostia and Fiumicino airport. Most of this work depends on the study of changes in the relative position of land and water in the area, but for the Roman period, some extraordinary evidence was forthcoming. A ‘hydraulic system’ was created, consisting of an ‘amphora dam’ (a long row of large amphorae placed side by side in the ground) and a number of walled channels and vertical poles. This apparently served to channel seawater into an enclosed lagoon for solar evaporation; at the end of the process, salt crystals would be collected from the surface.

Both Ulrich Stockinger and Isabella Tsigarida also discuss Roman salt, with Stockinger focusing mainly on textual evidence (Egypt, Vindolanda and so on) and Tsigarida on Britain. This last is notable for an approach that is based on a highly selective set of sources, almost completely omitting the work of Elaine Morris and Tom Lane, and mainly using the articles of Janine Fries-Knoblach (the only site to be discussed in any detail is that at Kingsley Fields, Nantwich). As the Red Hills of the east coast of England have generally been thought to have supplied most of eastern England, this approach seems surprising. Thomas Saile adopts a different approach, looking at salt production immediately prior to, and during, the Roman Empire, and comparing Mediterranean and central European production. In this, the total population of each area, and the assumed annual consumption of salt per person, gives us an idea of the very large volumes that must have been required (e.g. 5000 tonnes *per annum* for central Europe as a whole). Given that local production in central Europe appears to decline during the early Roman period, it is suggested that salt was instead obtained from Mediterranean sources as Rome expanded north of the Alps.

The other period to which special attention is devoted is the Neolithic, with two contributions covering Romania. The Lazarovici duo consider exploitation and transport in Transylvanian prehistory, starting from the depiction of knapsacks and tools for crushing rock salt, and proceeding to a consideration of potential transport routes as demonstrated by the

presence of Neolithic sites in suitable locations. In the latter case, associations have always been more easily assumed than proven, and such is the situation here. The presence of sites near Ocna Sibiului or Ocna Mureş, for instance, is suggestive but not definitive, although finds of 'mining tools' (waisted hammers) in the Govora area are certainly indicative (as also found at Figa, near Beclean). An alternative approach is that adopted by Brigand and Weller, whose spatial studies using a variety of statistical techniques are already well known in the literature.

A chapter by a team from Poznań, with Spanish involvement, covers salt exploitation in the Polish lowlands. Zbigniew Bukowski tried many years ago to create a picture of ancient salt-working across Poland, but realistically the only decent evidence comes from Little Poland, which is not covered here. The site at Inowrocław, excavated in the 1980s and 1990s, remains almost the only one in Great Poland with any real evidence for ancient exploitation; it is useful to have the results presented here as they were previously only published in local journals and on display boards in the park where the site is situated. It is also especially useful to have a plan and section of brine wells and reservoirs at this site, along with a full description of the production method adopted. There is mention too of a site at Chabsko near Mogilno, belonging to the Przeworsk culture, but no details are provided.

The chapter on the ethnography of salt in Moldavia, by Marius Alexianu and colleagues, provides fascinating information on the modern, 'traditional', uses and practices of salt in peasant communities. This Iaşi team, also including Weller and Brigand, has worked on the topic in various parts of Moldavia for many years; its results provide a window into the many possibilities that could also apply to the ancient exploitation of salt in such social and natural environments.

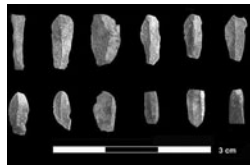
To supplement this fairly heavy European diet, we have two contributions on other parts of the world: an account of the search for 'pre-Columbian' salt production in Columbia, by Marianne Cardale Schrimpf, and a presentation of prehistoric salt production in Japan by Takamune Kawashima. Columbia is rich in salt, both coastal and from inland salt massifs, but its salt archaeology has been explored somewhat fitfully. Exploitation on a local scale on the coasts has happened up to the present day with enormous quantities of briquetage at some sites (e.g. Nemocón), but, as Cardale Schrimpf explains,

archaeologically, the evidence for ancient production is hard to locate. In Japan, most salt production is coastal, and pottery for producing it began as early as Jōmon, with hearths and pits for brine boiling excavated from several sites on Kyushu. Kawashima is able to build up a dynamic picture of how the relative importance of salt changed over time, with the scale of production increasing rapidly after the Kofun period (sixth century AD onwards).

The book is well produced, as we have come to expect from this publisher, and most of the texts are in good English (only the French contributions would have benefited from the eye of a native speaker). The editors are long-term experts on salt archaeology, and the choice of contributors is appropriate. While one could wish for some of the articles to have been expanded, perhaps at the expense of the few that go over well-trodden ground, the volume, taken as a whole, is a valuable and welcome addition to the literature on salt archaeology.

ANTHONY HARDING
Department of Archaeology
University of Exeter, UK
(Email: a.f.harding@exeter.ac.uk)

NATHAN GOODALE & WILLIAM ANDREFSKY, JR (ed.).
Lithic technological systems and evolutionary theory.
2015. xix+297 pages, 112 b&w illustrations, and 15
tables. New York: Cambridge University Press; 978-
1-107-02646-9 hardback £65.



Over recent years, the research interests of prehistoric archaeologists have diversified, but lithics (stone tools) remain central to understanding hominin

behavioural variation. Approaches to lithic analysis vary from the philosophical to the highly empirical, and there is little consensus on the 'right' way to do lithic analysis—or, indeed, whether a universal approach is possible. These different methods and theories operate at multiple levels, from the character of data collection through to higher-level interpretative frameworks. One prominent strand of lithic analysis takes an 'evolutionary' perspective. Whether one advocates this evolutionary approach or not, this edited collection will be critical reading for those wanting to understand where the approach