



INTERDISCIPLINARIA ARCHAEOLOGICA

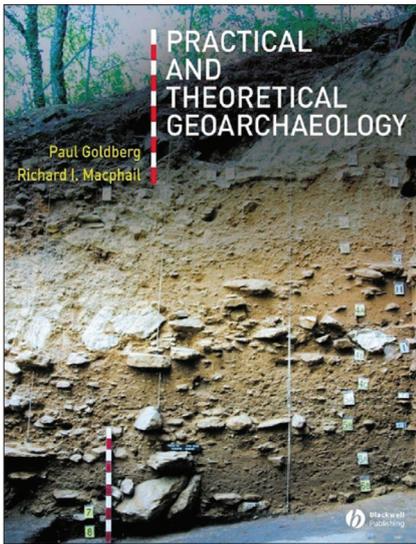
NATURAL SCIENCES IN ARCHAEOLOGY

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Book reviews

Goldberg, P., Macphail, R. I. 2006:
Practical and Theoretical Geoarchaeology.
Blackwell Publishing, 464 pp.



This manual of geoarchaeology focuses on both theoretical knowledge and practical application of diverse geoarchaeological methods. It is divided into three main parts. The first one, entitled “Regional scale geoarchaeology”, focuses in eight chapters on what could be called landscape geoarchaeology. It deals with sedimentology (Chapter 1) and stratigraphy (Chapter 2) in various environments such as slopes (Chapter 4), lakes (Chapter 5), coasts (Chapter 7) and caves (Chapter 8) and provides examples of how a knowledge of sedimentation processes can be used in geoarchaeological research. Not accidentally these examples are primarily related to Palaeolithic archaeology as the sedimentation rate of aeolian (Chapter 6), fluvial and other sediments during Pleistocene stadials was usually faster than in the Holocene interstadial. The exception is soil formation (Chapter 3): a number of soils, in contrast to paleosols, formed over the last ten thousand years and were key variables in Holocene settlements worldwide. Any environmental reconstruction of Holocene

prehistoric and medieval settlements has to come to terms with soil analysis (the same applies, of course, to Pleistocene paleosols). The soil itself can additionally be a witness to the human presence in any area: in the mountain regions of Italy and France, brown soils (as opposed to podsols) developed only after the application of artificial terracing (p. 63), *etc.*

The second part, entitled “Nontraditional geoarchaeological approaches”, deals above all with the human impact on the environment, with cultural layers and with additional anthropogenic deposits. Various geoarchaeological methods have traditionally been applied to the reconstruction of Quaternary palaeoenvironments although, more recently, they have frequently been used for the interpretation of anthropologically influenced sediments (Chapter 9). A number of such investigations are presented from both theoretical (Chapter 10) and practical points of view.

Micromorphological research, revealing the presence of forest clearance, cultivation and manuring, and other kinds of human activities, is fundamental for the reconstruction of several human-influenced sediments. The investigation of thin sections used for micromorphological research is best accompanied by measurements of pH, magnetic susceptibility, pollen analysis and chemistry (the content of phosphates, above all) of the given deposits (Chapter 11). The examples from history, provided by the authors, such as research into dump deposits in Roman roadside gullies or floor deposits of medieval houses, clearly indicate that the description on the macro-scale is often not sufficient as it fails to take into account the microlayers essential for functional interpretation. A number of the results are corroborated by experimental geoarchaeology (Chapter 12) at “experimental ancient farms” at Butser (UK) and Umeå (Sweden), although a number of results from those experiments (Macphail *et al.* 2004) have not always been enthusiastically accepted (Canti *et al.* 2006).

The raw materials used for artefact manufacture (Chapter 13) are not described here in such detail as in more specialized manuals of archaeometry (Malainey 2011; Hauptmann 2007) or petroarchaeology (Rapp 2009). There is instead only a brief overview of the building materials, bricks, turf, mortar and plaster, along with the methods of detection and identification of ancient metallurgical grounds and metalworking (by)products. The last chapter (14) of part II focuses on geoarchaeology in forensic science, with the potential of identification of clandestine graves and provenancing of materials from crime scenes.

The third and last part of the book, entitled “Field and laboratory methods, data, and reporting” briefly describes the scientific methods used when working in the field or analysing materials by specific instrumental, chemical and other analytical methods. The field work (Chapter 15) consists of both describing sections, making geophysical measurements, and collecting samples for further analysis. Laboratory analyses (Chapter 16) are, once again, only briefly introduced in comparison with more specialized manuals (Malainey 2011). Nonetheless, the primary chemical, physical and instrumental (SEM, EDAX) techniques are described here.

The ability to produce concise, yet informative, field reports (Chapter 17) which can serve as both a preliminary step towards scientific publication and basic information for the commissioning party, when the research is undertaken on a commercial basis, is essential for any geoarchaeologist. Laudable is the effort in Britain to force contracting companies to produce not only a full postexcavation report but also a more specific *assessment report*, first producing the results of the artefact study, suggesting further scientific analyses and assessing the importance of the analysed site for cultural heritage.

To sum up, the book is more focused on the environmental aspects of geoarchaeological research and formation processes of (geo)archaeological layers

than on material analyses. This is, of course, given by the specialization of both authors. The reader thus learns above all about pH and magnetic susceptibility measurements and chemistry of soils as well as about micromorphology of settlement layers. The advantage of this approach is that the reader is presented with a number of examples of up to date research on the given issue, carried out by the authors (who have since produced a number of further works on geomorphology and micromorphology (Goldberg, Berna 2010; MacPhail *et al.* 2013 *etc.*). The examples and results of the field investigations, always presented in separate boxes, are a strong point of the book as it is easy to grasp the principles and significance of all the field methods. I would advise looking elsewhere, however, for the material and laboratory analyses used in geoarchaeology (Herz, Garisson 1998; Malainey 2011) as the authors also do (p. 335). This book is, all in all, a must-read for any (geo)archaeologist or other scientist dealing with the reconstruction of climate,

environment and formation processes of the archaeological record in general.

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