have gone apparently unnoticed. A clearer definition of terms and a more critical assessment of the appropriateness of some of his analytical concepts might have yielded a clearer and more penetrating insight into the processes of state formation. As it is, we seem to hover uneasily between management theories and exploitation theories, though the mass of detailed evidence, both archaeological and historical, now available would seem to make this an ideal case study for refining these theories.

Many more detailed points also come to mind, and indeed it is a major achievement of this book that it provokes so many lines of enquiry. Was the organisation of the later Roman empire really so town-centred? What was the purpose of the peripatetic kingship? Was it a means of enforcing control of the periphery by a regular progress through the territory? Or was it a means of reducing transport costs for the collection of food-rents? Were these massive food-rents really all paid in kind, or were some of them commuted to money payments? Why were the emerging polities of north-western Europe so large compared to those in other areas of early state formation?

We may not believe that Hodges has got all the answers, or even believe the answers he has got, but it is a tribute to his book that the study of early medieval archaeology can never again be the same.

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ARCHAEOLOGY - BY ENVIRONMENTALISTS?

> The use of scientific aids no more makes archaeology into a science than a wooden leg makes a man into a tree.
>
> David Clarke

MYRA SHACKLEY, Environmental Archaeology. Allen and Unwin, London, 1981. 256pp., £18.00 (hard) ISBN 04-913-020-X, £9.95 (soft) ISBN 04-913-021-8

IAN SIMMONS and MICHAEL TOOLEY (eds), The Environment in British Prehistory. Gerald Duckworth and Co., Ltd., London, 1981. 334pp., £24.00 (hard) ISBN 0-7-156-1440-1, £7.95 (soft) ISBN 0-7-156-1441-X

Reviewed by Peter Rowley-Conwy

Behind two similar titles are two very different books. Shackley provides a chapter by chapter discussion of environmental techniques, using specific case studies as examples. Simmons and Tooley give a period by period description of British environments, drawing on various techniques for each period.

Shackley's stated goals are to provide (1) a guide to the subject and the associated literature, and (2) a reference book of procedures and techniques. The book is spiced with considerable humour, but it must be said that it largely fails in its aims. The book is written from the point of view of the specialist, not of archaeological application. It looks, in fact, very much as if it was designed to produce the kind of 'potted specialists' Shackley specifically repudiates.

This clearly emerges from the book's organisation. The first chapter, "sediments and soils", is the best one in the book, and goes a long way towards showing the archaeologist what the specialist can do to help (Shackley is herself a sedimentologist). Examples back this up; stone orientation in a flint scatter at Danebury, for example, shows that this feature is natural tumble from the ramparts, not a deliberately laid foundation. The specialist's perspective dominates, however: a study of lagoon formation at Carthage is discussed here, while a similar study from the Netherlands is in a later chapter. This is presumably because the Carthaginian case was approached by means of sediment analysis (= sedimentology specialisation), the Dutch case through diatoms (= micro-organism specialisation). Archaeologically identical information is discussed in different places because of the different specialisations involved.

Shackley is on less certain ground when discussing environmental reconstruction, and lays herself open to criticisms from both sides. Specialists may be unhappy with the treatment of their own field - in one review, Harry Kenward (Times High. Ed. Suppl. 14/5/82) devoted nearly half the available space to correcting latin names and long words (Kenward is an insect specialist). Division into topics is never from an archaeological point of view. Coprolites, for example, are discussed in chapters 2 (microbes), 4 (pollen), 6 (seeds), 9 (parasites) and 11 (fishbones), while at no point are archaeologists told which sort(s) of specialist(s) to employ to best effect in a given situation should they have the misfortune to encounter palaeopoop. Not all the background questions receive adequate treatment - the pollen work of Tauber and Peck (suggesting that pollen frequencies may be affected by filtration and water transport) is mentioned only to be ignored in the later discussion.

This treatment emphasises the lack of an archaeological perspective. We are faced with a bewildering array of specialisations, which must surely reinforce the tendency of some archaeologists to collect specialists as if they were exotic butterflies. The student will find parts of these chapters useful, but will be forgiven for wondering (as the reviewer does) whether such things as fungus, bacteria, parasites, liverworts etc. will ever be of other than anecdotal value to archaeology. In David Clarke's terms - are we not in danger of losing sight of the wood because of a proliferation of wooden legs?

Shackley is on even weaker ground when discussing bones and seeds. She fails to appreciate that studies in this field have a completely different goal, namely economic reconstruction. We are no longer in the realms of environmental archaeology, but in a different branch of the discipline. The problem is highlighted by the most unfortunate juxtapositioning in the book: environmental reconstruction from landsnails is in the same chapter as shell midden analysis, merely because they both involve molluscs. The seed chapter shows little interest in prehistoric economies, with its search for exotica such as the germination of wheat from Egyptian tombs, the history of brewing, and coprolites (again). The lack of interest in human behaviour is shown by the treatment of crop processing, which is discussed as a factor obscuring the "nature of the sample" (p. 122), not as one revealing a whole series of human activities.

Similar problems arise in the chapters on bones. One section discusses preservation and taphonomy, and only at its conclusion do we discover that this is intended "to distinguish those species which may act as environmental indicators from those whose representation is primarily biased by anthropogenic and/or economic considerations" (p. 165). Is the study of human behaviour as revealed by animal bones really nothing more than a weeding out process designed to leave a sample of environmental indicators? The chapters on fish and bird bones show the same orientation, with economic reconstruction and human behaviour playing second fiddle to ancient hydrology and environments. The background information is some-

times irrelevant and at times wrong - the table of finds of whales lists 10 Danish sites yielding common porpoise, while Mohl's standard work on the subject (Kuml 1970) lists 23. Failure to distinguish between environmental and economic archaeology emerges as the book's most serious problem - economic archaeology asks different questions (about human behaviour) from different kinds of material (direct refuse from deliberate human behaviour). The title of this review is not a semantic quibble.

Turning to The Environment in British Prehistory, we are struck by its different organisation: this is an attempt by archaeoenvironmentalists to present their findings, period by period, in a manner useful to archaeologists. The book represents the best synthesis of environmental information at present available.

Short chapters deal with the palaeolithic (Wymer), the bronze age (Tinsley) and the iron age (Turner). The first serves to emphasise how little we really know about the immense span of time involved, while the latter two are dominated by discussion of continued human clearance. One criticism is that Beaker Folk, Celtic Food Vessel Immigrants etc. still make an appearance; this is hardly modern archaeological nomenclature.

The mesolithic and neolithic dominate the environmental discussion. The enormous quantities of work carried out in the last two decades are well described in two long chapters; there are signs, however, that not all the various aspects of this work rest easily alongside one another.

The mesolithic chapter is by Simmons (sea levels), Dimbleby (soils, vegetation and man) and Grigson (fauna). Dimbleby's excellent section dominates the chapter. The main periods are described clearly, and particular aspects (the impact of man, fragile ecosystems etc.) then selected for further discussion. More discussion on one or two general points might have been added, however, in view of changes in emphasis through the section. Evidence from soils and pollen is taken to suggest fairly continuous, unbroken forest, with all that this implies (pp. 93-102). A rather different impression is gained from pp. 102-110, in which clearance in the mesolithic, soil deterioration, animal grazing and fragile ecosystems are all discussed as factors which would to some extent thin out or break up the forest. Were the lowland forests really unbroken - or did the various counteracting factors have an effect not visible in the pollen diagrams? Work on pollen dispersion could usefully have been included here.

The neolithic chapter is by Smith, with contributions from Tooley (sea levels), Grigson (fauna) and Hillman (crops). Clearance by farmers is the major theme, and inevitably synthesis raises problems. Rival climatic and anthropogenic explanations for the elm decline are discussed, the anthropogenic one being generally favoured. Discussion of Hibbert's impressive pollen transects from the Somerset Levels does, however, point to alternative possibilities. Traces of cultivation are, as we should expect, limited to areas close to the cultivable islands. The elm decline, on the other hand, is a major feature visible throughout the area, which implies that it was a widespread background phenomenon not linked to human clearance. In general, though, the problems of clearance are well handled. Iversen's classic work is placed in historical perspective, the point being made that the British situation seems more complex. There is a tendency for clearings to be described as 'large' or 'small', although the currently insoluble problems of clearance size(s) and distance(s) from the sample point are discussed. As for use of the clearances, it is hard enough to tell 'mesolithic' from 'neolithic' clearances; within the neolithic, Smith freely admits the uncertainties: "neolithic communities may have used a forest-fallow system of agriculture..." (p. 205), although "semi-permanent agriculture would not be out of line with recent palaeobotanical evidence" (p. 206).

There are in places in the book, hints of a Shackley-type failure to distinguish between environmental and economic archaeology. The need is several times mentioned for "a Star Carr for every period, and at least for both lowland and upland" (Simmons p. 291). Sites seem here to be viewed as representative data capsules, a view increasingly at odds with the archaeological understanding that each period will contain many types of site performing a variety of roles. Grigson's discussion of the change from early neolithic cattle-dominated economies to late neolithic pig-dominated ones does not mention that the sites yielding the faunas in question are causewayed camps and henges; both are apparently ritual in some way and so not necessarily representative of the domestic economy. However, this tendency is rather less noticeable than in Shackley's book; in particular, Hillman's discussion of seeds treats human behaviour as a prime goal of any study, not as a troublesome factor likely to obscure environmental information. Archaeological sites are emphatically not static environmental data traps - they are much more interesting than that.