

## References

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LEWIS BINFORD, Bones: Ancient Men and Modern Myths. Academic Press, New York and London, 1978. 320pp. £24.20 (Hard) ISBN 0-12-100035-4.

Reviewed by Paul Halstead

Reading Bones is at once a stimulating and a deadening experience. To begin with the bad news, the prose is inimitably Binfordian, and the lack of editorial intervention is apparent at every level. In terms of organisation, the attempt to emulate the involuted form of narrative used to such effect in Joseph Heller's Catch 22 is not a success. Like Heller's Yossarian, the muscle-stripping argument of the hapless George Frison is resurrected and crucified in chapter after chapter and repetitions like this make Bones twice as long and half as clear as it should be. The text is generously leavened with about 90

photographs - of which some are good and most serviceable. About a quarter of them, however, mainly those taken in the field, are useless, and a singularly uninformative aerial view of wolves relaxing is featured twice (pp. 199 and 222)! Most of the line drawings are clear, but some of the tables would baffle a cipher clerk, and the incorrect references to tables almost torpedoed this reviewer's attempt to run the gauntlet of chapter 6. For all its inexcusable editorial shortcomings, however, Bones is guaranteed a wide readership by Binford's name and belligerent style - and it does address absolutely central problems of archaeological method.

Binford's basic proposition (passim, but especially chapter 2) is that our attempts to explain the past ('general theory') are worthless unless we have an independent body of 'middle-range theory' (Binford, 1977), 'interpretive theory' (Clarke, 1973) or, at a pinch, 'behavioral archaeology' (Schiffer, 1976) with which to extract unambiguous information about hominid behaviour from the archaeological record. Middle-range research must begin in the present where the relationship between the dynamics of behaviour (the bear) and its static derivatives (the footprint) can be observed. Putting this observation to work in the archaeological record then requires that two conditions be met. Firstly, a causal relationship, and not simply a correlation, must be established between dynamics and statics in the present. Secondly, uniformitarian assumptions concerning this causal relationship must be warranted by some argument for its relevance to the past. Binford is well aware that warranting arguments on these conditions must themselves be theory-laden, but circularity may be avoided by heeding his dictum that "Our middle-range theory must be intellectually independent of

our general theory" (p. 29). Binford's prescriptions are fairly hardline (and he does not invariably practise what he preaches), but we cannot ignore them just because we do not like their implications. On the contrary, his basic logic seems inescapable if archaeologists are to pursue something akin to social science rather than creative writing, and it is interesting to note that his views on the use of the present in interpreting the past have essentially been echoed by Hodder (1982).

Binford points out that recent general theory about early hominid behaviour is heavily dependent on the 'evidence' of faunal remains and so the middle-range problem addressed in *Bones* is that of distinguishing between hominid and non-hominid (particularly carnivore) modification of bone. This problem is especially critical in the Lower Pleistocene when many 'assemblages' are (unlike the distinctively human monuments of later prehistory) meaningless associations of hominids' tools and carnivores' left-overs in an essentially geological matrix (chapter 1). The assumption that faunal remains associated with either hominid bones or tools can serve as models for diagnostically hominid patterns of bone modification has had bizarre consequences which Binford cites in eloquent support for his demand that middle-range research be grounded in the present. Hominid behaviour in the Lower Pleistocene is likely to have differed radically from anything known today; thus Binford accepts the need for argument by elimination in identifying the traces of early hominids while recognising that this process must be informed by rigorous middle-range research on the traces of possible non-hominid agents (chapter 3).

The process of elimination begins with Binford's own observations in North America on skeletal

disarticulation and bone modification by wolves and domestic dogs, supplemented by the work of Brain, Klein and Hill on the effects of dogs, hyaenas and natural disarticulation in Africa (chapters 3-5). The resulting 'control collections' are not ideal. Rarely was the bear actually seen making the footprint, and other depositional, retrieval and analytical effects on the data are unspecified, though in part this is the price to be paid for large samples of comparative material. In any case, Binford does not use the control collections to identify carnivore activity *per se*, but rather to eliminate patterning in bones which need not be referred to as hominid behaviour. The reliability and uniformitarian applicability of Binford's pattern recognition work on these control collections is hard to assess, but he is surely right in his claim that animal jaws are predisposed to the progressive disarticulation of carcasses and progressive destruction of bones (working from the outside inwards), while hominid tools offer the possibility of a more direct approach to the desired end. It seems inherently likely that this basic "contrast of animals as bone destroyers and meat 'tearers', with men as bone breakers and meat cutters" (p. 179) should leave distinctive traces.

Binford was able to observe the Nunamiut under more controlled conditions (chapter 4). Their skinning, butchering and filleting of carcasses leaves cut marks on bones which could hardly be mistaken for the results of gnawing by animals, but more interesting is the contrast between the marks derived from primary butchery and those from filleting. Unfortunately Binford admits that he did not fully appreciate the importance of marrow utilisation until after his fieldwork. Among the Nunamiut, a distinctive pattern of bone breakage results from marrow-cracking,

but this is of limited applicability to the archaeological record because no causal relationship has been identified. Nunamiut marrow-cracking also leaves clear impact scars on bones, but the possibility of achieving a similar effect with other potential agents of (post-) depositional mechanical fracture has not been ruled out. Binford's detailed account of the social and economic contexts of different skinning, butchering, filleting and marrow-cracking tactics, however, is fascinating and suggests fruitful avenues for further research.

The climax of the book (chapter 6) is Binford's new look at Olduvai Gorge and at Isaac's idea that animal bones found on living floors are evidence for food-sharing at the home bases of early hominids. In fact there is little information yet as to how many of these bones bear the tell-tale cut marks of stone tools, and Binford argues powerfully, from Mary Leakey's own descriptions, that most of the Olduvai 'living floors' are of low resolution (they were deposited under variable conditions) and/or integrity (their contents derive from a variety of agents). In other words, the association of tools and bones probably means little, and home bases and food-sharing are just modern myths.

In view of his own cautionary remarks, Binford might have been expected to close on this negative note. Instead he valiantly reconstructs the anatomical composition of the Olduvai faunal assemblages and contrasts them with models, derived from his control collections, for destruction and transport by carnivores. Only part of the variability in the Olduvai assemblages can immediately be explained in terms of these models and so be eliminated. Binford argues that some of the remaining variability can be referred to hominid behaviour -- specifically to marrow extraction from carcasses

already scavenged and abandoned by carnivores. This attractive story fits with the importance of hammerstones in early levels at Olduvai (p. 281), but marrow-cracking was probably the weakest part of Binford's middle-range research, and in his lengthy analysis of anatomical composition, the 'fit between data and expectations is frequently poor. Moreover, Binford fails to demonstrate that the remaining variability in these assemblages of low integrity and resolution could not be explained by some combination of several separate episodes of carnivore destruction and transport. Post-depositional sorting of the material, poor recovery and several transformations of the raw data are powerful alternative sources of variability. But, if Binford's Lower Pleistocene marrow-crackers eventually become just another modern myth because of the rigorous application of middle-range research to the archaeological record, then *Bones* will have done its job.

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IAN HODDER, *Symbols in Action*. Cambridge University Press, Cambridge, 1982. 244 pp. £19.50 (Hard) ISBN 0-521-24176-6.

Reviewed by Joan Gero

*Symbols in Action* argues that material items act as symbols to