

of information, stimulation and food for thought. The time will soon be ripe for another conference, as it is over three years since the Nottingham one. Quantification of the scale of the problem is apparent in many of the papers, and the CBA deserves credit for maintaining a high standard of publication both in content and quality of line drawings and photographs. As always the odd spurious number or correlation appears, and this book's prize must go to Jim Pickering for the following: "There are approximately four million fields in Britain (approximately as many fields as there are spectators at 40 Wembley FA Cup Finals)." (p.2). Perhaps there is also a correlation between the number of goals scored during the season as there are crop-marks sites? Perhaps not!

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JOHN YELLEN, Archaeological Approaches to the Present: Models for Reconstructing the Past. Academic Press, New York. 1977. 259 pp. £29.80 (Hard) ISBN 0-12-770350-0.

Reviewed by Todd Whitelaw

While published in 1977, this book is essentially the author's doctoral dissertation, completed in 1974. Therefore the research described is now more than a decade old. Nevertheless, from the perspective of the last issue, on ethnoarchaeology, the work was one of the first major monographs concerned with ethnoarchaeology, and deserves continued critical attention. Contrary to expectations, the book is not dated, and still stands as one of the few major monographs in this field. It remains undated because the author's attitude is open-ended and exploratory, rather than dogmatic, but also because ethnoarchaeology, as a research area, has never been channelled in a single direction,

but has been pursued in a wide variety of ways, and for an equally wide variety of purposes. In this way, there has been little published work which has built directly on Yellen's study, and nothing which has superceded it. The work has remained novel for a number of reasons, primarily because:

1. It presents what remains the largest and most systematically documented body of data on hunter-gatherer camp-sites;
2. It is one of the few studies which has tried to generalise from a specific case to a behavioural concern of wider relevance cross-culturally; and
3. It tries to analyse the data and present its findings in a form which is directly relevant to archaeology.

In this review I shall focus on the latter two-thirds of the volume, which present and analyse the contents and distribution of material on sixteen mapped hunter-gatherer campsites. However, it is appropriate to mention briefly the other third of the book, which serves to put these data in context.

Despite the very general title of the volume, the work is concerned with the settlement patterns of the !Kung San of Botswana, from the scale of regional movement across the landscape, to the micro-spatial distribution of debris within camp-sites. The title of the original dissertation is more explicit: The !Kung Settlement Pattern: An Archaeological Perspective. The introductory chapter still provides a lively discussion of different approaches to ethnoarchaeology, and puts the author's aims in perspective. As with much of the research carried out by the Harvard University Bushman Studies Project, the emphasis of the work is heavily ecological. The second chapter presents in condensed form, some of the principal aspects of the

ecology of the northern Kalahari desert, the area inhabited by the !Kung San. This discussion is essentially qualitative, and should now be read in conjunction with more quantitative ecological studies of the area, such as Silberbauer's (1981) and Tanaka's (1980) work among the neighbouring G/wi San. While an understanding of the local ecology is necessary to explain aspects of the !Kung settlement pattern, this must be considered at a rather local scale, as the complete inversion of the seasonal pattern of aggregation and dispersion, among other Kalahari groups, makes clear (Cashdan 1983). The following two chapters focus on large-scale patterns of human behaviour, documenting general characteristics of the relationship between !Kung band behaviour and ecological conditions. The second of these discusses in detail the !Kung band studied, giving both its recent history, and putting the camps studied in detail into the context of the seasonal pattern of *aggregation and dispersal*. For both chapters, the reader must now take into consideration recent work by Wiessner (1982), which has taken a longer-term perspective on !Kung residential groupings and movements, and allows much of what had seemed to be expedient, (characterised by Yellen as "random", p.37), to be recognised as part of a coherent set of strategies for coping with environmental variation and subsistence risk. In addition, in trying to understand band behaviour, it is crucial to consider the context of !Kung hunter-gatherers, who even at the time of this study, were linked socially and economically to neighbouring pastoralists, and !Kung working on cattle camps. This element is mentioned by the author, though its implications for !Kung settlement patterns are not really explored. Again, Wiessner's work on !San exchange systems highlights the importance of such links to !Kung subsistence behaviour, band

residence, and seasonal movement.

The first three chapters, while providing essential background to the data and interpretations presented later in the book, must be considered in the light of more recent work on hunter-gatherer ecology and behaviour. On the other hand, the remaining sections of the book (chapters 5 to 7) still stand essentially on their own. Developments over the past decade in quantitative approaches to spatial analysis and conceptual approaches to site structure might radically alter the content of these chapters, if they were written today, but such work presents a perspective subsequent to the chapters at hand and would not substantially modify our understanding of the data and analyses presented in these chapters. They represent additions to our knowledge, rather than revisions to previously held views. Leaving these points aside, I would like to consider some points which I believe should be kept in mind when these chapters are read or the data presented utilised.

Yellen identified three contributions which he hoped his work would make to archaeology: firstly, the recording and presentation of a kind of data that is fast disappearing from the anthropological record (p. 5) and secondly, the exploration of analytical techniques in ethnoarchaeological 'laboratory' conditions where, since the behavioural 'causes' and their archaeological 'effects' are known, the methods of analysis and associated assumptions may be examined (p.11). Finally, on the basis of his analyses, he presents equations linking group size and length of site occupation to the size of camp-sites, which he feels may be used predictively in the interpretation of archaeologically recorded hunter-gatherer sites (pp.131-4).

These aims may be discussed under three broad topics:

1. The data, its attributes and scope for further work; 2. The appropriateness of the analyses; and 3. The implications of the work for archaeological research.

1. The primary data consist of 16 plans of abandoned !Kung camp-sites, with all debris mapped and identified. The documentation of a series of camps is crucial, as this allows analysis of recurring patterns of spatial behaviour rather than unique events, as is the case with most one-off ethnoarchaeological studies -- usually reduced to simple 'cautionary tales'. For 15 of the camps, information is known about the number of individuals present, the duration of the occupation, details of any re-occupation, and some information concerning the activities conducted at the site. The latter information was elicited from interviews with individuals who had been present during the occupations, though these were conducted from several hours up to 32 weeks after the occupations. One major difficulty with this information is the sexual bias. Interviews seem to have been conducted with men, who were able to give sometimes considerable information about the hunts undertaken from each camp and the game brought back to camp. However, most of the artefactual deposition on site is the direct result of activities taking place within the camp while the hunters were away, such as food processing by women around hearths, the relocation of activity areas to utilise shade, debris disposal, and childrens' play. Essentially no camp specific information is presented about these activities, and so most of the archaeologically recorded debris is without direct behavioural referent. Therefore, the data presented in such detail is largely superfluous, from Yellen's 'laboratory' perspective, and one is restricted to addressing

only fairly gross questions relating archaeological statics to behavioural dynamics.

Another complication arises from the fact that all camps were picked over by scavengers between their abandonment and eventual mapping (p.102). Add to this the fact that only those remains actually on the surface were mapped, whereas it is known that many materials from these occupations worked down into the loose sand (p.103). Both points were recognised by Yellen, though the degree to which these limit any studies of site formation processes was probably not appreciated.

Finally, another source of bias in the camp-sites actually mapped is noted by Yellen (pp.59-65), but again, I think not fully appreciated. This is that 13 camps in the series relate to a single annual cycle of movement for the families of two brothers, the focus of the study. In that cycle, 37 moves were made, and 28 different camps were occupied. Yellen mapped and presents data on 13 of those. These were chosen as the only camp-sites at which faunal remains were present. This is crucial in that for most of the mapped camps, the great majority of the material evidence, and particularly the evidence determining the size of the spatial measures of camp area, is provided by the faunal remains. One can expect that for sites without faunal remains, these measures would be very different and would affect the results if they had been included in the analyses Yellen presents. A more subtle bias, however, is that all but one of the mapped camps were occupied for more than one day. Analyses I have undertaken with the camp data, suggest the length of stay appears to relate to the spatial organisation of the camps, and since this is largely determined by the initial layout of the camps, the anticipated duration of an

occupation is a relevant factor; I suggest that the spatial layout of overnight travelling camps is rather different from what Yellen's analyses would predict.

With respect to the data then, the limited range of behavioural variables documented and the characteristics of the archaeological data mentioned above severely limit the types of questions which can be explored with the data presented in this volume. At the same time, it must also be remembered that this is still the only body of detailed camp-site data available for any hunter-gatherers.

2. In reflecting on the analyses conducted, the author notes that more rigorous procedures could have been used to define spatial units (p.135). The actual analyses conducted also suggest a lack of familiarity with statistical techniques, and many of the resulting analytical conclusions are actually ambiguous or open to doubt. For example, the bimodal shape of the graph in figure 10 is not useful, since LS:SA and LS:NA are not effectively distinguished by the two modes (the LS:SA are almost evenly divided between the two modes: 24 to 28). In tables 15, 17, 19 and 20, correlations of 0.2739 to 0.4093 are taken as substantively meaningful, because they are statistically significant -- in table 20, the number of individuals occupying an area is held to account for artefact richness, despite the fact that less than 8% of the variance is 'explained' by the relationship.

On more substantive issues, one can question whether the variables chosen for analysis are relevant to the issues at hand: the 'information function' seems inadequate as an index of the number and variety of artefacts in a deposit (p.107). Likewise, the analysis of the relationships

between number of occupants, duration of occupation, and occupation area seems incomplete, since the arguments put forward suggest that a more direct determinant of debris scatter would be person-days of occupation rather than either of the other two variables. As a third example, the note on page 122 suggesting that some of the relationships between variables are exponential in nature makes no attempt to suggest why this should be so or why an exponential description of the relationship would have any behavioural relevance. This is more surprising since an allometric relationship between camp population and area had previously been argued, for the same data, on both theoretical and empirical grounds (Wiessner 1974).

The analyses presented should therefore be considered carefully by the reader -- as to whether the specific analytical techniques are appropriate and whether the inferred conclusions actually follow from the analyses conducted. Except for mis numbering on some of the plans, the data contained in appendices B and C and on the plans allows the reader to re-work and supplement the analyses in chapter 6.

3. In conclusion, I would like to stress two general points which arise out of the substantive issues confronted in this book which indicate some of the wider implications of such research. The first concerns the nature of the relationship between material statics and behavioural dynamics; the second concerns our general understanding of hunter-gatherer settlement behaviour.

The first point goes back to the author's belief that his ethnoarchaeological observations provide a 'laboratory' situation, since "direct observation of an ongoing society permits one to



correlate activities, and even patterns of thought or social organisation, with material byproducts that may be preserved in the archaeological record" (p.11). My comments above on both the data collection and analysis should make it clear that I have serious doubts that we can yet say that we understand the linkage between cause and effect in !Kung settlement patterns. The relevance of the "answers" was assumed from the beginning, rather than demonstrated. That this problem stems from a more basic philosophical position seems indicated when the author states: "While the reasons may be unclear, these correlations do exist, and both length of occupation and group size can be predicted once the area of scatter is known." (p.123-5). The contrast between correlation and causality is the basis of the author's own criticism of earlier work relating measures of site area to population (p.101). The ability to investigate the "reasons" is the essential aspect of ethnoarchaeological research which separates it from archaeological pattern recognition. It is this aspect, the possibility of directly linking behavioural dynamics with material statics, which is the promise ethnoarchaeology holds for archaeological methodology and theory.

The second concern, that of generalising from a specific case to propositions of more general validity, is implied by the subtitle of the book: Models for reconstructing the past. This is also explicitly identified by the author as one of the aims of the volume (p.5-6), though in the end, he himself does not avoid "the anthropologist's own brand of 'ethnocentricity' -- which views the world through the blinders...of the culture he studies" (p.5). The models presented simply serve to describe a limited aspect of !Kung settlement patterns.

The limitations of the work from this perspective seem to be at least partially recognised but then glossed over. "What I have tried to do is provide a concrete approach to the analysis of living floors." (p.131). "I offered predictive equations for group size and length of occupation and put them in an archaeologically useful form. This constitutes an original piece of research and is perhaps the single most important contribution of this book." (p.134). However, because the "reasons" behind the correlations have not been explored, one cannot identify those situations when one would expect the relationships described by the equations to hold. Again, this seems partially recognised, but no solutions are proposed: "One must realize, however, that my formulation will often provide only a starting point, and a very real danger arises if one tries to force all archaeological scatters into a framework of this kind. I must frankly admit that, in the event that data do not fit into this mold, I am uncertain just what the next step should be." (p.131). The crucial problem is that even if one were to accept Yellen's position that the equations he provides in some way 'explain' rather than simply 'describe' the relationship between behaviour and material record in the !Kung case, the equation makes no reference to more general properties of hunter-gatherer behaviour. Because of this, the relevance of any specific properties of the !Kung case to other hunter-gatherer groups is not established.

This volume was one of the first major ethnoarchaeological studies, and it remains one of the few studies where the author has focussed considerable attention on the intentions and implications of the work. This review addresses some of the issues raised by the

mentary, rather than as critique. The book deserves detailed attention from anyone trying to understand site formation, approaching site analysis, or studying hunter-gatherer spatial behaviour; and much valuable discussion has necessarily been overlooked in this review. Yellen concluded: "...if I have done no more than indicate some of the unsuspected limitations and problems that confront the archaeologist, noted a few fruitful lines for further investigation, and offered several techniques and approaches that will further these ends, then I believe this contribution to be a useful one" (p.136). If the volume still deserves discussion after 10 years, that belief was clearly justified.

volume, and is intended as a com-

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