

Tim Dook

Third Theoretical Archaeology

Group Conference

THE USE OF ECOLOGICAL MODELS:

HUMAN ADAPTIVE STRATEGY IN THE PLEISTOCENE

Tuesday 15th December 1981, 9.0 a.m. - 1.0 p.m.

University of Reading

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SESSION PROGRAMME AND ABSTRACTS

THE USE OF ECOLOGICAL MODELS

HUMAN ADAPTIVE STRATEGY IN THE PLEISTOCENE

Chairperson : Dr. Robert Foley

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| Dr. Robert Foley<br>(University of Durham)                    | What did hunters do for a living in the Pleistocene? Problems in hunter-gatherer studies           |
| Dr. Nicholas Flemming<br>(Institute of Oceanographic Science) | Adaptation and the rising sea of the Late Pleistocene  |
| Dr. Andrew Hill<br>(Harvard University)                       | Hyaenas and hominids : can we identify the earliest hunter-gatherers?                              |
| Dr. Alan Turner<br>(University of York)                       | Hominids and fellow-travellers   |
| Miss Katharine Scott<br>(University of Cambridge)             | Hunter-gatherers in big, cold, empty spaces : theoretical issues in the Middle Palaeolithic        |
| Dr. Clive Gamble<br>(University of Southampton)               | Ecological resources and alternative hunter-gatherer strategies in Late Pleistocene Central Europe |
| Dr. Andrew Garrard<br>(University of Cambridge)               | Prey selection and group size : a case study for the Middle to Upper Palaeolithic of the Near East |
| Professor David Harris<br>(Institute of Archaeology)          | Discussant   |

Session Abstract

HUMAN ADAPTIVE STRATEGY IN THE PLEISTOCENE

Hunter-gatherer studies have been in the forefront of the development of theory in archaeology. Models have been developed relating to a wide range of problems - the origins of hunting, the division of economic activity by sex, the development of institutions above the level of the kin group, and the transition from hunter-gatherers to agriculturalists. Underlying all these have been principles derived from ethnographic observations of hunter-gatherers. The results of work with extant groups has been illuminating, particularly when linked to the specificities of the archaeological record, but there have also been suggestions that these models have applied too rigid a strait-jacket to Pleistocene human behaviour.

This session is devoted to some problems arising from the use of ethnographic data in the interpretation of prehistoric hunter-gatherers, and the alternatives available derived from ecological and environmental principles. What all these papers have in common is an attempt to understand hunter-gatherer spatial and/or temporal variability during the Pleistocene without giving primacy to the ethnographic record. Instead emphasis is placed on the environment and the ecological principles governing the relationship between man and that environment. To achieve this end specific problems relating to hunter-gatherer adaptation will be described and analysed. These problems include the effect of terrestrial and marine environmental changes on hominids during the Pleistocene - group size, prey selection, settlement distribution, mobility; the ways in which resource availability varies through space and time with environmental parameters and the implications of this for selection of strategy; and the articulation of hominids with the large mammal community, in terms of the development of carnivorism and the expansion of the hominid range. It is hoped that these papers will illustrate the fertility of an ecological approach to human evolution and adaptation.

WHAT DID HUNTERS DO FOR A LIVING DURING THE PLEISTOCENE?  
PROBLEMS IN HUNTER-GATHERER STUDIES

Robert Foley

Current models of hunter-gatherer adaptive strategy indicate variability with latitude, as a function of differential resource availability and diversity (Lee 1968; Binford 1979). This paper examines the adequacy of this model for tropical environments. There is wide consensus that in the tropics hunting was of little subsistence significance in relation to gathering. However, there are reasons for questioning this - 1) the representativeness of the ethnographic evidence on which this conclusion is based; 2) the current distribution of animal dependent societies in tropical Africa; 3) the pattern of variation in resource availability in tropical environments. It is proposed that hunting of large mammals was of considerable significance for low latitude hunter-gatherers during the Pleistocene. Aspects of their adaptive strategy will be discussed.

ADAPTATION AND THE RISING SEA OF THE LATE PLEISTOCENE

Nicholas Flemming

During the last one million years, sea level changes of the order of 100 metres permitted mammalian fauna and humans to live for prolonged periods on the continental shelf. There is no field evidence yet for human remains more than 20,000 years old on the continental shelf. Nevertheless, important migrations between continents and from continents to major islands occurred on the million-year time scale. At present, one can only speculate on the adaptation of human groups to progressive rising and falling of sea-level. Sub-marine archaeological excavation has revealed sites as old as 11,000 BP below present sea level in Europe, the Mediterranean and America. The evidence suggests tentatively that coastal settlements were adapted to seafaring and exploitation of marine resources. It is not possible yet to deduce how these settlements or habitation sites reacted to the rising sea level. It is obvious that sites must have been abandoned but we do not know whether settlements were occupied very close to the shore; whether they were moved gradually landwards as the sea rose; or whether occupation sites were deliberately selected at a safe distance from the rising waters.

Andrew Hill

There is a tendency in science to view the simple or more parsimonious of rival theories as not only the most elegant; but also as the most probable. This tendency should be handled with caution, especially in sciences that have a strong historical element, for here the data are often known to be poor and are hence consistent with a large number of ostensibly simple theories.

Questions regarding the earliest hunter-gatherers is a case where these problems are considerable. The direct evidence available consists for the most part of accumulations of artifacts and fossil bones, the status of which is not always clear.

In the past ethnographic information has been used in explanations, but such variable analogical models are often just a means of imposing a spurious simplicity on a complex situation. It is difficult to judge the validity of extrapolations from the data to the whole conjectured mode of life.

I describe here an alternative situation. Hyenas behave as hunters and scavengers in the modern African savanna and sometimes collect bones in large quantities. The data base is similar to that for early human hunter-gatherers, but the whole mode of life is known to be essentially different. Analysis of the hyena bone accumulations allows us to test the strength of our inferences from archaeological bone assemblages to broader matters.

This work may also have the potential of providing (from a larger taxonomical base) information for generalisations concerning the problems faced by any hunter in the African savanna, and documents one means of overcoming the difficulties of naive analogical models.

This approach is of course imposing yet another form of simplicity. However, models that have a more general ecological basis probably take into account, and interact in a more complex way with, a number of other necessary factors that must be considered if the earliest hunter-gatherers are to be recognized and understood.

Alan Turner

Many discussions of hominid radiation explore such movements solely with regard to archaeological and hominid fossil data. These discussions make little or no effort to consider the movements of other mammalian species as parallel migrations and radiations. The inclusion of these species in the study tends to be confined to their use as chronological markers, in periods where radiometric techniques are difficult or impossible to apply, or to the light which they shed on human diet. This paper redresses that balance. Regarding man as one member of a large mammalian community during the Pleistocene may provide vastly more scope for the interpretation of his movement patterns and evolutionary development than any study which addresses itself solely to the evidence of hominids and their technology. The discussion points in particular to the usefulness of large predators, such as lion, wolf and hyena, as migration markers in the fossil record, and outlines the scope which their remains may have for understanding hominid movements into the temperate zones and the New World.