ETHIOPIA

Investigating the earliest Food-producing communities of the northern Ethiopian Highlands: A case study from Aksum, Tigray

Niall Finneran
Department of Archaeology
Cambridge University
Cambridge, CB2, United Kingdom

The Ethiopian highlands have long held a fascination for archaeologists and ethnobotanists with an interest in the origins of early African food production. Ever since the Russian botanist, N.I. Vavilov (1951) first proposed these highlands as a "centre of origin" for certain autocthonous African domesticated crops and local varieties, prehistorians and plant scientists alike have viewed the region as being a potential gold mine for palaeoeconomic research. This is due to two prime factors; on the ethnoarchaeobotanical level the highland socioeconomic agrocomplex is highly conservative by nature, and in effect represents a way of life little changed for hundreds of years; and for the archaeologist, potential "neolithic" sites are many and have barely been investigated in detail (see the preface of Shaw et.al. 1993 for a detailed discussion of the problems with traditional archaeological nomenclature which still beset us). Any critique of this period in Ethiopian prehistory (eg. Brandt, 1984, 1986; Phillipson, 1993) will invariably highlight both the dearth of solid archaeological data for this period, as well as the number of highly speculative models (the majority, invariably, being of a diffusionist/migrationist character) that have been constructed over the years to explain the emergence of agricultural communities in the Ethiopian highlands.

It was against this background that the present writer initiated a small-scale archaeological study in an attempt to elucidate, however slightly, the nature of late prehistoric economic change in the northern Ethiopian highland region. This paper briefly explains the philosophy, scope and structure of this project, and its relevance to a wider African context. At the time of writing, specific qualitative analysis of the artefactual evidence yielded by excavation is incomplete, and it would therefore be unwise to speculate too closely on the nature of the technological evidence. A programme of AMS dating is expected to be completed by the end of 1998, and the full results of this project will be published at the end of 1999[1].

The project is focused on the Aksum environs in northern Tigray (a site better known for its extensive monumental remains from a much later period), and the present writer was able to work here in conjunction with the British Institute in Eastern Africa's Aksum Archaeological Research Project. The project study area was limited to a 10 kilometre radius of the modern town of Aksum (as laid down by the excavation permit from the Ethiopian authorities), and in the first instance three seven-week field seasons over three years were planned. These have now been completed (1995-1997).

For the prehistorian, this part of Tigray is not quite virgin territory; Phillipson's excavations at Gobedra rockshelter (located some four kilometres to the west of Aksum) provided a clear summary lithic sequence, possibly spanning some ten thousand years (Phillipson 1977), and from the landscape perspective, an intense surface survey was undertaken along the Aksum plain during the mid 1970s (Michels 1986). The primary goal of this survey was to provide a clearer picture of pre-Aksumite and Aksumite period settlement patterns, and also to yield a ceramic chronology for these periods (see also Michels 1994) based largely on obsidian hydration dating of the collected associated lithic pieces. Further to the east of Aksum, around the Tembien region, a survey dedicated to the location of LSA sites has also been recently undertaken (Negash 1997).

For myself, I have never felt comfortable with the notion of augmenting a purely locational surface survey with selective excavation. Sutton (1984, 1991a) cautions against simply leaping (archaeologically speaking) into excavating a few sites at the expense of ethnographic, historical and landscape background study; he suggests, rightly in my view, that one approach to investigating early Ethiopian (or African) agriculture is to work backwards from the ethnographic present, and look at the archaeological problem from an holistic viewpoint. It is only by attempting to view agricultural dynamics over the long timescale, and over the whole landscape,

that one avoids a rather blinkered site-orientated perspective; in this regard landscape studies are a valuable tool. With this in mind, and always conscious of limitations on finance and time in the field, it was decided to design a primarily landscape-orientated archaeological project, augmented by selective excavation and ethnoarchaeological survey. I do not wish to underplay the obvious value of tightly dated excavated cultural sequences, but, as I have suggested (and at risk of the accusation of hobby-horse riding), only a wider theoretical perspective will naturally furnish the wider archaeological view.

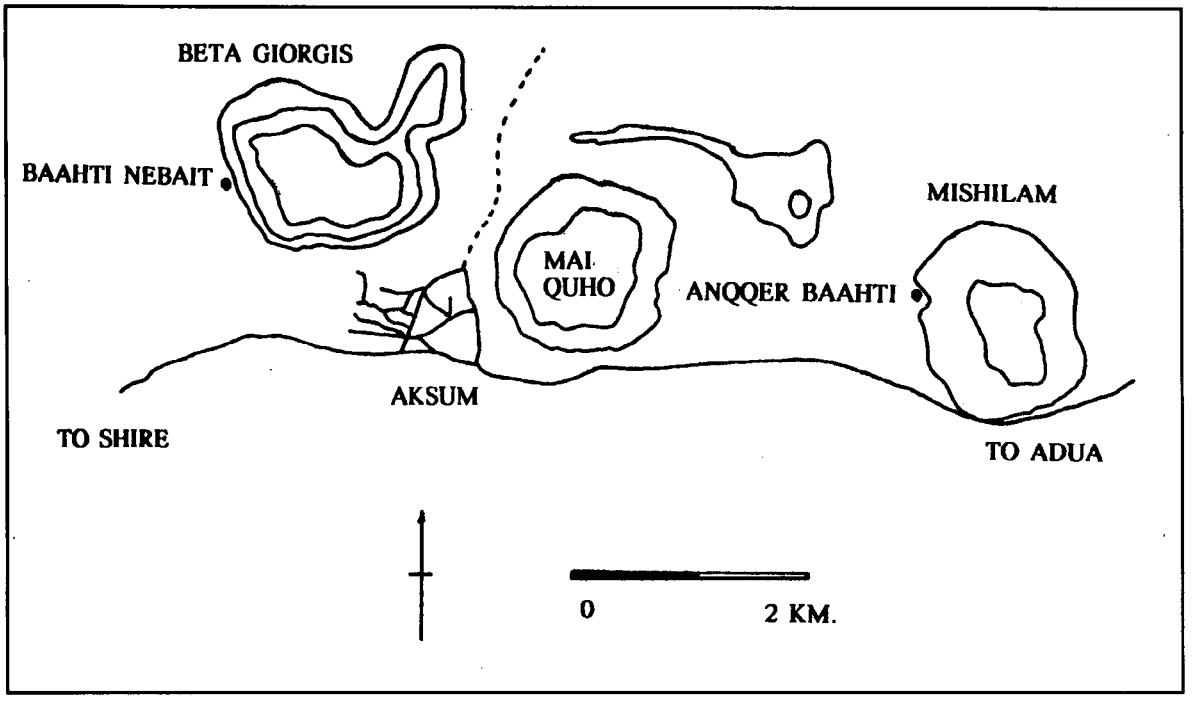
Within contemporary intellectual archaeological thought, landscape studies are currently *en vogue*. This is easily explained; such projects are cost-effective from the practical viewpoint, and also yield a greater deal of information than selective site-based excavation (Zvelebil et.al. 1992). The landscape mirrors man's interaction with the environment on many levels, and is the unifying context that enables satisfactory interpretation of individual sites (cf. Crummley and Marquardt 1990). Archaeology has come a long way from early unrigourous attempts at understanding the site in context (ea. site catchment analysis), and apart from clarifying spatial patterning of purely utilitarian variables, such studies can also be used to elucidate the nature of socio-symbolic aspects within the archaeological landscape, if not quite as imaginatively as Tilley claims (1994), for example (ea. Gaffney et.al. 1996). Geographic Information Systems (G.I.S.) have recently given the archaeologist considerable scope for manipulating and analysing spatial data on many different levels (Savage 1990), and has added a new dimension to landscape study. It was always considered that even a small-scale G.I.S. approach to analysis of the landscape data would be within the scope of the project, and would lead to a better spatial understanding of environmental and cultural dynamics within the modern (and archaeological) landscape of Aksum.

With this in mind, the first priority at Aksum was to conduct a low-level, purely locational surface survey. Key prehistoric (and historic) sites were located, mapped and briefly described during the 1995 field season (for preliminary results, see Phillipson et al. 1996). This was not a systematic survey, and fell short of the "ideal" that archaeologists often theorise about conducting (eg. Schiffer et.al. 1978); it was a necessary preliminary to the main excavation work, and the bare bones of the data could be subsequently fleshed-out in the future. Accurate maps of the survey area were an obvious necessity, and using various scale maps and aerial photographs (obtained from the Ethiopian Mapping Authority), the location of prehistoric sites, key landscape, geomorphological and hydrological features were plotted. In this way, a general picture of the landscape around Aksum could be built up, and added to a G.I.S. database.

In the two subsequent field seasons (1996, 1997), the key prehistoric sites were revisited, and the earlier observations were augmented with more detailed information: a dossier of landscape and archaeological information for each individual site was built up, noting for example such "geographical" variables as local hydrology, geomorphology, land use, vegetation and soil types, and archaeological variables such as density and area of deposit, artefact types and site chronology. Surface scatters can often present misleading information; taphonomic processes, modern land-use and site re-use can all blur the chronological resolution of a surface scatter. Plough damage does not seem to be as great a problem in Tigray as one finds on intensively worked European agricultural landscapes; the local *marasha* plough only penetrates the soil to a depth of about fifteen centimetres (pers obs. and Huffnagel 1961:153), and occasionally livestock trampling may blur the site signature to a moderate extent. The real enemy for archaeologist and farmer alike in this region is the considerable amount soil denudation from the hill slopes (cf. Hurni 1990). Erosion certainly contributes to the mixing of surface artefacts, and the traditional solution to the erosion problem, namely planting thick vegetation (Eucalyptus is used in modern times) on hill slopes, certainly does nothing to ameliorate archaeological visibility around the hill flanks! This situation was somewhat alleviated with reference to the Gobedra lithic material, and also to material from two of my own rockshelter excavations; these three sequences served as basic guides to surface site chronology.

Two promising rockshelters were discovered during the preliminary 1995 survey (see Figure 1); Anqqer Baahti, located under a sandstone "inselberg" in the western flanks of Mishilam hill, some five kilometres to the east of Aksum, and Baahti Nebait, situated on the lower western flanks

Figure 1: Sketch map showing location of excavated rockshelters.

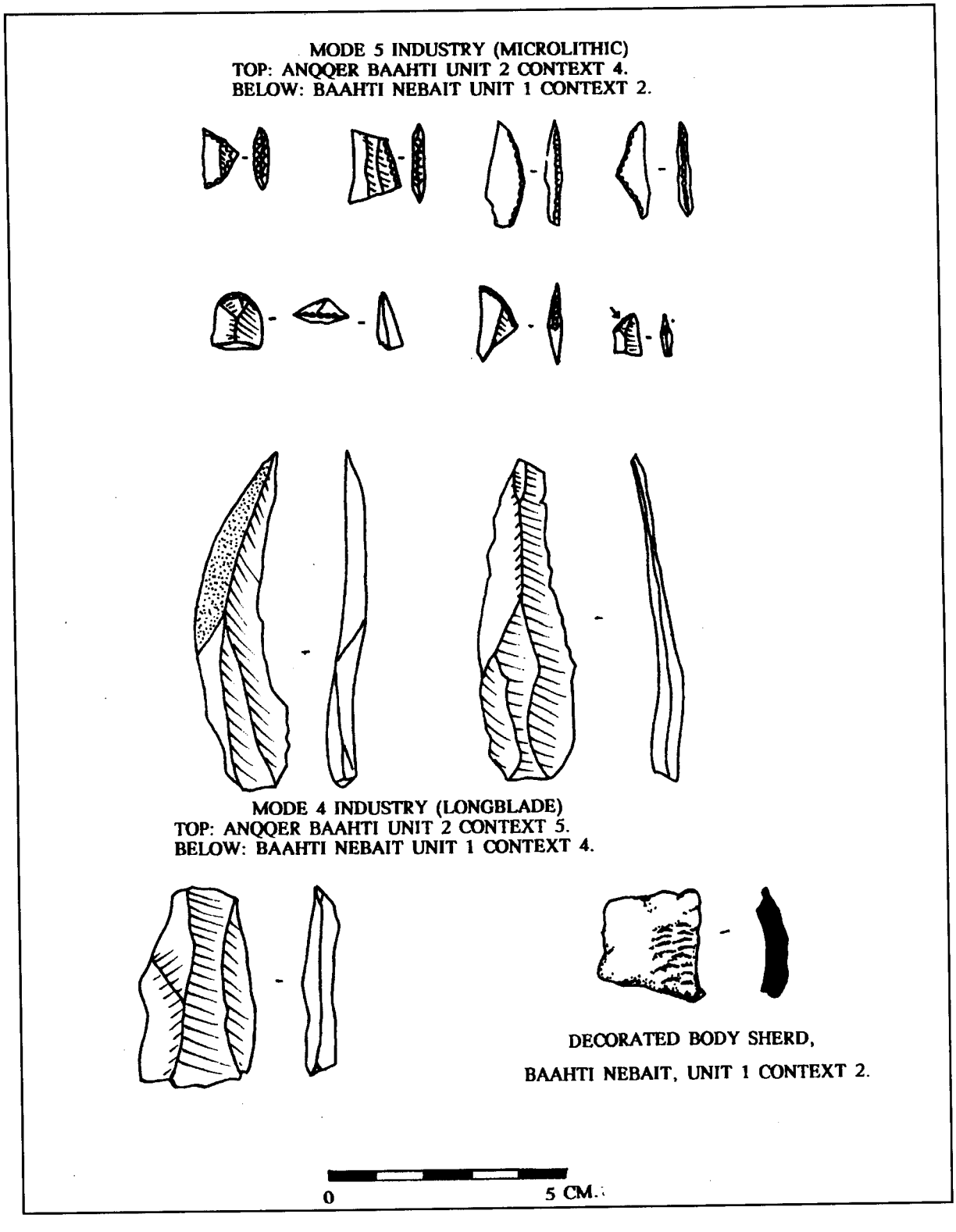


of Beta Giorgis hill, some four kilometres to the north-west of the town. The excavation strategy at both sites focused primarily on maximising the amount of palaeoenvironmental data to be recovered, and both sites were intensively sampled for archaeobotanical flotation, with particular importance attached to differential spatial bulk sampling (in an attempt to elucidate discrete crop-processing activity areas). The lithic (and to some extent the ceramic) corpus recovered from both sites showed clear similarities to the Gobedra sequence, and using this information it was able to make informed judgements on the chronological indicators of the unexcavated (surface) sites. Because so little is known about the nature of the northern Ethiopian ceramic and lithic traditions, the analysis of the excavated artefacts was accomplished using rigorous statistical and attribute-coding tools; it will be interesting to see how the late prehistoric ceramics from this region compare to those from adjacent well-researched areas (eg. Fattovich 1975, 1978, 1984).

The lithic sequence at both excavated sites, to use a rather unsatisfactory technochronological term, is typically "LSA" in character. To reflect Clark's (1969) terminology, a "mode 4" long blade industry underlies successive "mode 5" aceramic/ceramic microlithic phases (Figure 2). At Anqqer Baahti the longblade industry is fabricated exclusively of mudstone (obtained from nearby stream beds), at Baahti Nebait the early lithic phases are represented by long blades fashioned exclusively from mudstone and fine-grained sandstones. These blades show no retouch, and little sign of heavy utilisation. They were, perhaps, the ultimate throw-away tools. The aceramic and ceramic microlithic industrial phases are similar in character at both sites; fabricated from a wide range of macrocrystalline and micro-crystalline quartzes, they contain small proportions of geometries and backed bladelets and variform scrapers. These sequences unsurprisingly mirror that recovered at Gobedra.

The ceramic corpus from both sites was especially small. The upper levels at Anqqer Baahti yielded a melange of pre-Aksumite and Aksumite forms, but the earliest ceramicbearing levels at both sites yielded a small number of decorated sherds clearly akin to the earliest at Gobedra; these body sherds are simply decorated with linear registers of small, oblique dashes, perhaps formed by a thumb-

Figure 2: Selected artifacts recovered from excavation.



nail (Figure 2). They show some affinity with similar elements recovered from excavations in the Gash Delta in eastern Sudan (R. Fattovich, pers. comm.). It is additionally hoped that the identification of wood charcoal (remarkably well preserved at Baahti Nebait) will give a clear picture of prehistoric and historic vegetation patterns. Analysis of the archaeobotanical and zooarchaeological data is ongoing at the time of writing.

The final component of the project was a small-scale ethnographic study of the modern farming communities around Aksum. Archaeologists are still uncomfortable about applying an ethnographic models to the archaeological database (eg. Tilley, 1996:1), and the value of many of the observations may be variable and subjectively interpreted (Atherton, 1983; Lane 1996). Ethnoarchaeologists currently at work in the Ethiopian highlands are aware that they are facing a race against time; these highland communities are conservative by nature (but should not be regarded as quaint, anachronistic fossils), and they have thus far resisted the demands of modern agriculture that have seen many other traditional farming societies in Africa disappear. It is only a matter of time before the demands of market forces, and the perceived need for agricultural modernization, overtakes these communities. One may disagree with the direct archaeological value of such work, but its historic and documental importance is clear.

Within Tigray, ethnoarchaeological research is well advanced in the Mekelle area (D'Andrea et.al. 1997), and is yielding some fruitful results. At Aksum, over a period of three years, a satisfactory ethnographic picture was built up, although I was conscious of my shortcomings as an ethnographer in this respect. Generally informants are forthcoming and open, but are naturally evasive about questions regarding wealth or landholdings, such is the universal fear of the tax inspector! It was only after two years, and after building up considerable trust among certain families, that one could obtain reasonably reliable socio-economic information. Valuable data about crop use, agrarian technology and land-use has been gleaned from these efforts, and further documentary research, allied to investigations of historic field systems, should yield much interesting information about the development of the Ethiopian highland agrocomplex.

It is hoped that this brief overview has illustrated the philosophy behind the project, and shown one way in which a multi-disciplinary archaeological landscape study project can be tackled simply, and without recourse to the technologically imposing world of more advanced G.I.S. techniques. As with any study, the degree of accuracy of the information will be dependent on conditions in the field, and access to suitable equipment; but such is the flexibility of G.I.S., it is equally applicable to a very large scale regional study or, as here, to a small-scale hinterland-based project.

The investigation of "agricultural origins" presents a minefield of theoretical, practical and interpretative problems (eg. Robertshaw 1991; Sutton 1991b). This paper emphasises that one must approach the practical problem of investigation from an holistic perspective, and recognise the limitations imposed by a strictly site-based study. It would be easy to criticise this technique as being merely a scattergun approach, or the utilisation of a number of disciplines for their own sake, but African archaeologists are now beginning to see the value of integrated, multi-disciplinary studies, especially when investigating the maze of problems which surround the whole question of agricultural "origins" in given areas, and the attendant pitfalls traditionally associated with migrationist or diffusionist explanations.

Footnote

1. Finneran, N. in prep. *Post-Pleistocene Economic Developments in the Northern Highlands of Ethiopia.* PhD thesis, University of Cambridge.

Acknowledgements

This paper summarises ongoing PhD research at the Department of Archaeology in the University of Cambridge, and I would wish firstly to thank my supervisor, Dr. David W. Phillipson for reading a draft copy of this paper, and for all the assistance he has furnished me with in his capacity as the director of the British Institute in Eastern Africa's Aksum Archaeological Research Project. I would also like to record my gratitude to the following members of the Aksum Archaeological Research Project team who so generously gave of their time in the field: Sheila Boardman (archaeobotanist), Chester Cain (zooarchaeologist) and Dr. Jacke Phillips

(ceramicist). I also wish to thank Professor Catherine D'Andrea and Dr. Ann Butler for giving me an insight into the intricacies of ethnoarchaeology, and for allowing me to join them at Mekelle during their 1997 field season. I also acknowledge the kind assistance of Professor Rodolfo Fattovich with a number of vexed questions about ceramic chronology, and the sharp theoretical insights of Professor Steven Brandt. Financial support for this project was provided by the British Institute in Eastern Africa (1995-97), the James Swan Fund, University of Oxford (1996-97), the Gluckstein Fund, Gonville and Caius College, University of Cambridge (1996-97) and the Anthony Wilkin Fund, University of Cambridge (1997).

References

Atherton, J.H.

1983 Ethnoarchaeology in Africa. *African Archaeological Review* 1: 75-104.

Brandt, S.A.

1984 New perspectives on the origins of food production in Ethiopia. In J.D. Clark and S.A. Brandt, editors, *From Hunters To Farmers: Causes and Consequences of African Food Production*. Berkeley: University of California Press, pp. 173-191.

1986 The Upper Pleistocene and early Holocene prehistory of the Horn of Africa. *African Archaeological Review* 4: 41-82.

Clark, J.G.D.

1969 *World Prehistory: a new outline*. Cambridge: Cambridge University Press.

Crummley, C.L. and W.H. Marquant

1990 Landscape: a unifying concept in regional analysis, in K. Allen et.al., editors, *Interpreting Space: GIS and Archaeology*. London: Taylor and Francis, pp. 73-80.

D'Andrea, A.C., Mitiku Haile, E.A. Butler and D.E. Lyons

1997 Ethnoarchaeological research in the Ethiopian Highlands. *Nyame Akuma* 47: 19-26.

Fattovich, R.

1975 The Contribution of the Nile Valley cultures to the rising of the Ethiopian civilisation. *Meroitic Newsletter 16:* 2-8.

1978 Traces of a possible African component in the pre-Aksumite culture of northern Ethiopia. *Abbay* 9: 21-30.

1984 Remarks on the later prehistory and early history of northern Ethiopia. In Tadesse Beyene, editor, *Proceedings of the Eighth International Conference on Ethiopian Studies*, Addis Ababa, pp. 85-104.

Gaffney, V., Z. Stanic and H. Watson

1996 Moving from catchments to cognition: tentative steps towards a larger archaeological context for GIS. In M. Aldenderfer and H.D.G. Maschner, editors, *Anthropology, Space and Geographic Information Systems*. Oxford: Oxford University Press, pp. 132-154.

Huffnagel, H.P

1961 Agriculture in Ethiopia . Rome: Food and Agriculture Organisation.

Hurni, H.

1990 Degradation and conservation of soil resources in the Ethiopian Highlands. In B. Messerli and H. Hurni, editors, *African Mountains and Highlands*. Nairobi: African Mountains Association, pp. 51-63.

Lane, P.

1996 Rethinking Ethnoarchaeology. In G. Pwiti and R. Soper, editors, *Aspects of African Archaeology. Papers from the Tenth Pan African Association for Prehistory and Related Studies*. Harare: University of Zimbabwe Publications, pp. 727-732.

Michels, J.W.

1986 The Axumite Kingdom: a settlement archaeology perspective. In A. Gromyko, editor, *Proceedings of the ninth International Conference of Ethiopian Studies*. Moscow: Navka Press, pp. 173-183.

1994 Regional political organisation in the Axum-Yeha area during the preAxumite and Axumite eras. *Etudes Ethiopiennes* 1: 61-80.

Negash, Agazi

1997 Preliminary results of an archaeological reconnaissance of Tigray, northern Ethiopia. *Nyame Akuma 47:* 27-32.

Phillipson, D.W.

1977 The excavation of Gobedra rockshelter, Axum. *Azania* 12: 53-82.

1993 On the antiquity of cultivation and herding in Ethiopia. In T. Shaw et al., editors, *The archaeology of Africa: Food, metals and towns*. London: Routledge, pp. 344-57.

Phillipson, D.W. et al.

1996 B.I.E.A. Excavations at Aksum, Northern Ethiopia, 1995. *Azania* 31: 99-147.

Robertshaw, P.

1991 On agricultural beginnings in Kenya: retrospects and prospects. In R. Leakey and L.J. Slikkerveer, editors, *Origins and Development of Agriculture in East Africa: The Ethnosystems Approach to the Study of Early Food Production in Kenya*. Studies in technology and social change 10. Ames: Iowa State University, pp. 7-16.

Savage, S.

1990 GIS in archaeological research, in K. Allen et al., editors, *Interpreting Space: GIS and Archaeology*. London: Taylor and Francis, pp. 22-32.

Schiffer, M.B., A.P. Sullivan and T.C. Klinger

1978 The design of archaeological surveys. *World Archaeology* 10: 1-28.

Shaw, T., P. Sinclair, B. Andah and A. Okpoko, editors

1993 *The Archaeology of Africa: Food, Metals and Towns*. London: Routledge.

Sutton, J.E.G.

1984 Agricultural history in Ethiopian and beyond. In Tadesse Beyene, editor, *Proceedings of the Eighth International Conference on Ethiopian Studies*, Addis Ababa, pp. 45-46.

1991a The place of Ethiopia in African agriculture history, in Bahru Zewde, R. Pankhurst and Tadesse Beyene, editors, *Proceedings of the Eleventh International Conference of Ethiopian Studies*. Institute of Ethiopian Studies, Addis Ababa University., pp. 131-134.

1991b Agricultural history in East Africa: purpose, progress and prospects. In R. Leakey and L.J. Slikkerveer, editors, *Origins and Development of Agriculture in East Africa: The Ethnosystems Approach to the Study of Early Food Production in Kenya.* Studies in technology and social change 10. Ames: Iowa State University, pp. 95-101.

Tilley, C.Y.

1994 *A Phenomenology of Landscape.* London: Berg

1996 *An Ethnography of the Neolithic.* Cambridge: Cambridge University Press.

Vavilov, N.I.

1951 The origins, variation, immunity and breeding of cultivated plants. *Chronica Botanica* 13: 1-364.

Zvelebil, M., S.W. Green and M.G. Macklin

1992 Archaeological landscapes, lithic scatters and human behaviour. In J. Rossignol and L Wandsnider, editors, *Space, Time and Archaeological Landscapes.* New York: Plenum, pp. 193-226.