

The end of the moving frontier in the Neolithic of North-Eastern Africa

The greatly increased information now available from North-Eastern Africa, much of it summarised in Williams and Faure (1980), suggests that it should be possible to view the relationships of the earliest plant- and animal-husbandmen in a way different from that of the traditional processual studies. The idea of "The Frontier", originally defined by Turner (1893) for North America as "the temporary boundary of an expanding society at the edge of substantially freelands", is valid for a variety of regions through the world (Elkin, 1951; Lingren, 1938; Sharp, 1955) and for widely divergent periods of time (Billington, 1967; Hudson, 1977). The relationship can be further refined by accepting the distinction of a "moving" frontier which exists between husbandmen and hunter-gatherers until the limits of particular complex of plant and/or animal climatic tolerance are reached, and a "static" frontier then develops from the symbiosis within a region between hunter-gatherers and farmers (Alexander, 1977: 25 - 40). The relationship in both situations need to be considered from the farmers' and hunter-gatherers' point of view and the "spectra of reaction" understood. This means that any individual site must then be studied for its place in one or the other spectra. Unless this can be done, any individual site is liable to misinterpretation. Criteria for definitions of this kind already exist in North-East Africa, since recent work by Abbas Mohammed Ali (1978), Hassan (1980), Wendorf and Hassan (1980) and others have shown that hunting and gathering populations were widespread when there plant- or animal-husbandry developed after the 8th millenium B.C. That they were then far more widespread than would be possible today has also been established, and it would seem that the existence of a "Northern Sahel", albeit interrupted by areas of desert, ought to be seriously considered and may have existed as far south as 20° Lat. Areas of pure desert would also have been reduced by a northern extension of the "Southern Sahel" and the greater humidity of the Central Saharan massifs in the period 8000 - 2000 B. C. and the river systems flowing from them.

Some of the hunter-gatherer-fisher communities had already achieved consi-

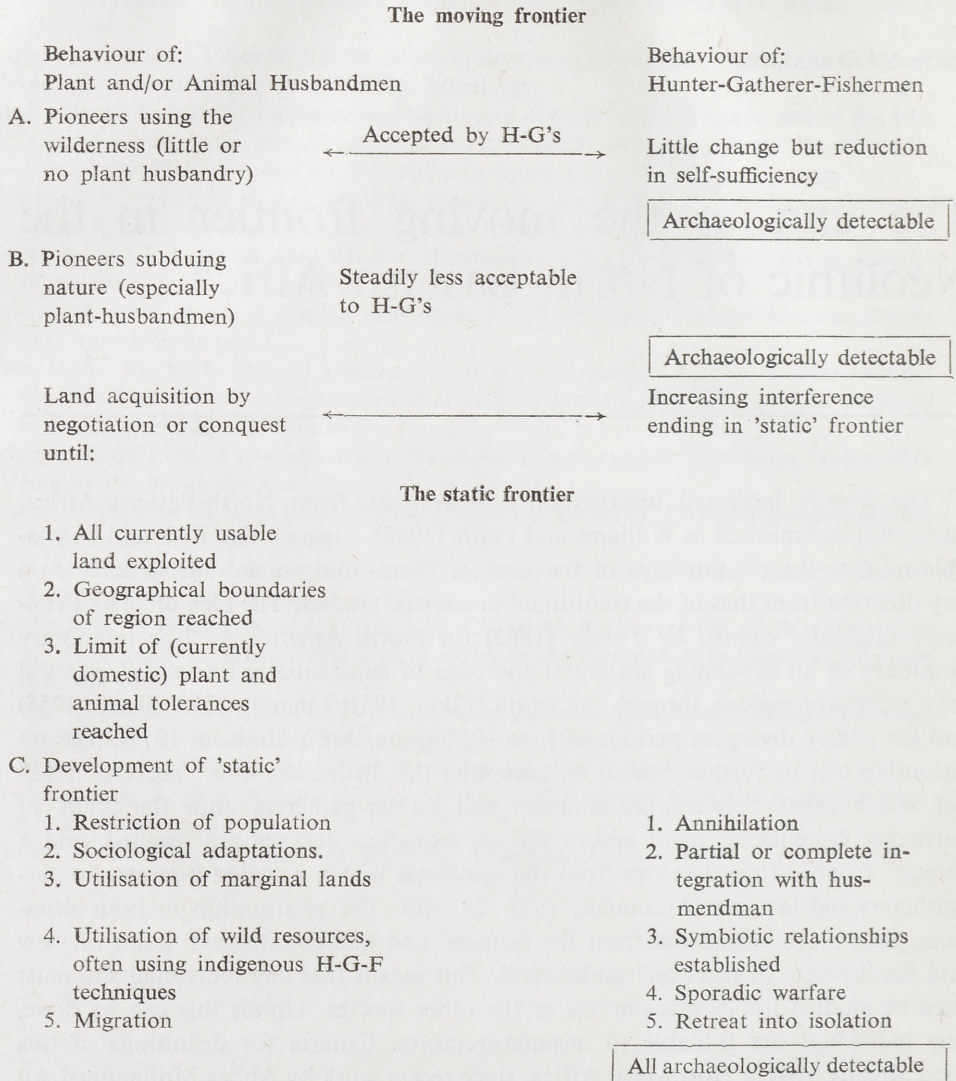


Fig. 1. A general model of a frontier

derable sophistication: the domestication of caprids in the west (Roubet, 1971; Sutton, 1974), and the specialised hunting of bovids and the collection and grinding of wild grasses in the north-east (Clark, 1980) suggest a pre-adaption to husbandry, although of course offering no guarantee of its adoption.

Within this transcontinental web of advanced and varied exploitation, three husbandry complexes can now be seen to have become established by the 4th millennium B.C. One of them, a wheat/barley, caprid/bovid complex is by then installed in the Lower Nile Valley and the Mediterranean littoral, another complex,

millet, caprid/bovid in the Middle Nile Valley and west "Southern Savannah", and the third, bovid/caprid only, in the "eastern south and north Savannah/Sahel". Each of these must be considered in turn.

Wheat/Barley and Caprid/Bovid complex

This is the most easily recognised mixed-farming complex which had been known in Western Asia from the 8th millennium. Its spread across Europe is not in dispute and has been much studied; recently in France this has been done in terms of the frontier theory here being advanced (Alexander, 1978, 45). Of especial interest for North-East Africa was the spread of farming through the northern coastlands and the islands of the Mediterranean Sea.

The spread of farming in Europe may be defined in terms of the Phases A and B of a moving frontier of the kind first recognised in the European occupation of North America (Fig. 1) and proposed for the Middle Nile Valley by Alexander and Abbas Mohammed (1980: 80). Phase A is composed of pioneers with a husbandry complex using the "wilderness" without subduing it, and in Phase B the pioneers subdue it, in the process of so doing they increasingly influence, absorb or destroy existing hunter-gatherer communities. The South Mediterranean littoral might, in a period of greater humidity, be expected to have had a similar history to the north littoral and in broad terms this was so, in the 8-6th millennia B.C. for in both, the Phase A of the frontier seems to include a spread of caprid farming which is found in Greece, southern Italy and southern France in the 7/6th millennium B.C. (Trump, 1980) as well as in Libya and Tunisia (Roubet, 1971; Clark, 1980). An inland spread through the Danube Basin can also be documented in S.E. Europe and something similar might have been expected in N.E. Africa in the Nile Valley. Its absence on present evidence might be accounted for by the Lower Nile Valley and Delta acting as a barrier to Phase A pioneers interested in "wild" pasture and "wild" meat (Fig.2).

From the husbandman's
point of view:

Phase A:

Acquires: "Wild" pasture
"Wild" meat and
other foods
Raw materials
Escape routes for groups
and individuals

From the hunter-gatherer's
point of view:

New alternative foods
New technology
New and more prestige goods

Phase B:

Acquires: Cultivable land
„Controlled" pasture
„Controlled" water

May accept symbiosis
May accept domestication

Fig. 2. The advantages of the moving frontier

Gallery forest and floodplain vegetation allied, in the Nile Valley at least, with a relatively dense hunter-gatherer-fisher population may well have been so alien as to constitute a formidable obstacle to pioneer movement by land. The spread of Phase A pioneers and new ideas to Libya and beyond may well, therefore, have been by sea only. The finds at Haua Fteah (McBurney, 1967) may well be a pale reflection of this move in the 7th millennium, for Phase B pioneers were already established in Crete by the late 7th millennium. There is no evidence of the presence of Phase B pioneers in the Lower Nile Valley and beyond before the mid-5th millennium, suggesting a slow penetration rate which allowed for much greater local development than in contemporary Europe. The Fayum and Merimde evidence in particular suggests actual immigrations from S.E. Asia and so a recognisable "moving frontier".

The expansion of this farming complex to the limits of its climatic tolerance can be traced southwards through the Nile Valley and westward to the Atlantic. In N.E. Africa the southern limits of its plant tolerances have been recently discussed by Stemler (1980). It has shown that whilst wheat and barley will grow, when irrigated as far south as the 6th cataract (Bertin, 1971), south of 1st cataract is a transitional zone where the tropical millets are more at home. The animal tolerances are greater and no frontier limit exists for them where pasture and water may be found. The development of this Nubian "Frontier" has been discussed at greater length elsewhere (Alexander and Ali Abbas Mohammed, 1980). The spread of plant husbandry westwards from the Lower Nile Valley would have been inhibited by the increasing and well documented dessication of the 3-2nd millennium (Clark, 1980); it would have been restricted to oases and perhaps periodic water courses.

The Phase A zone of a frontier of this kind might be very wide. In Canada in the 17 - 18th centuries it was several 1000 kms wide and may well have been similar in 6th millennium B.C. Europe, so that ideas and objects might travel within hunter-gatherer exchange — or raiding — systems, as they did in pre-European Australia. Another insight might be gained from pre-European South Africa where caprid and then cattle husbandry preceded (in an A Phase) the mixed agriculture linked with the spread of Bantu-speaking peoples (B Phase). Caprid and cattle husbandry also seems to have been accepted by large numbers of Khoisan-speakers.

Caprid/Bovoid complex

The second "frontier" area is that of the Central Sahara plains and massifs where, if the C14 dates are accepted cattle husbandry and a new craft of pottery-making were established by the 7th millennium B.C. Whether this was the result of long range stimuli from the Mediterranean littoral or indigenous discovery is not the concern of this paper. It is sufficient here to accept that by the 7th millennium, communities of animal husbandmen existed in the Central Sahara and that two spectra of reaction to the new ideas might to be expected here.

The first spectrum, as must have happened in Western Asia, would have been the whole, partial or non-acceptance of domestication by local groups; evidence of contemporary communities in all these circumstances might be expected. Whilst cyclical movements through pastures may be postulated for many groups (Clark, 1980), wider movement into "empty" lands east, west and south may be suggested (Gulliver, 1975). Here, only the eastward movements may be considered, but a moving frontier of herdsmen utilising open pastures or competing with hunting groups for "wild" meat is likely. Its existence is suggested by the distribution of pottery types found earliest in the Central Sahara and then found (being used by hunter-gatherer-fishers) in the Middle Nile Basin. The Shabona and Early Khartoum communities of the 7-5th millennium B.C. are perhaps best seen as indigenous groups influenced by a movement of this kind. The furthest extension of this frontier to the north-east seems to be in the Western desert in Egypt where cattlebones and Central Saharan type pottery occur in the 7th millennium at Nabta Playa. Nearby, in the Nile Valley, were other cattle-keepers whose stock and ideas were quite different and may well have come from the east. In the north-eastern movement, the importance of the Wadi Howar drainage system may well have been overlooked (Ali Abbas Mohammed, 1978). Even when animal husbandry is well established in a region there may well be niches which can still be occupied by hunter-gatherers, so that a spectrum of sites linked with the static frontier may be found in the Central Sahara and eastern Sahels. These developments may be due to social organisation rather than economic determinism (Bender, 1978: 25).

Millet, Caprid/Bovid complex

The third "frontier" of N.E. Africa was the result of the development of mixed-farming based, on the botanical side, on indigenous tropical millets. There seems no doubt that species of pennisetum were domesticated in the "southern" savannahs and that the region between the Ethiopian highlands and the Jebel Marra shows the earliest evidence of this taking place (Harlan *et al.*, 1976). Stemler (1980) will presumably now modified her late dating for this event in the light of finds from Kadero (Krzyżaniak, 1978) for the domestication of the millets must have happened before or during the 5th millennium B.C. It is not the purpose of this paper to consider how this may have happened, but once mixed farming with caprids and cattle had developed, a new moving frontier may be postulated with a new spectrum of reaction between farmers and existing hunter-gatherers. It would seem that there was a moving frontier westwards, since mixed farming appears only later in the "western" savannahs, and, (of special interest here) northwards. In the Nile Valley between 6th and 1st cataracts, the northern limit of the tolerance of the tropical millets would have been reached, and in much of that zone they would have been preferred as a food crop to wheat and barley. There must, therefore, have developed here that rare and interesting phenomenon, a static frontier between the two agri-

cultural systems with a transition zone in which they mixed. This should be recognisable culturally between 1st and 6th cataracts, where, with developing dessication, there should be an especially complex "spectrum of reaction" between hunter-gatherers, wheat/barley-growing farmers, millet-growing farmers and pastoralists.

Conclusion

By the 4th millennium B.C. it would seem that the three husbandry complexes of North-Eastern Africa had expanded to fill the available space and were all in touch with each other. In the case of the two mixed farming complexes, their boundaries were dictated by the climatic tolerances of their domesticated plants. In each of the three zones, "moving" frontiers at this point gave place to "static" ones in which local relationships with hunter-gatherer-fisher groups became stabilised.

Against this general background, individual sites will have to be studied to see where they belong in either the spectrum of relationships of husbandmen or of hunter-gatherers.

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