

Eastern Jordan: Economic Choices and Site Location in the Neolithic Periods

Archaeological survey in north-eastern Jordan has produced evidence for widespread activity in the Neolithic periods, the seventh, sixth and early fifth millennia B.C.¹ There is also considerable variety in the nature of sites of this period, their location, and the environmental and material remains associated with them. This pattern is largely dictated by the nature of the land. Resources available to prehistoric groups were plentiful and numerous in the rich environment of the Mediterranean zone of the Near East. Choice was more limited and supplies more widely scattered in the semi-arid regions. The natural response of most human groups under such conditions is to diversify, to rely on a variety of different resources so that if one fails there will always be another. Usually, such a strategy will also involve the group in a degree of mobility as the ability to exploit resources over a wide area maximizes the chance of success. Evidence for human groups in eastern Jordan during the Neolithic periods indicates that such a pattern existed. Sites of all types are small and unlikely to have seen permanent occupation, while environmental data show that use was made of a diverse selection of resources. Even within eastern Jordan there is a wide range of environmental conditions, which are dictated by such natural phenomena as geology, tectonic activity, drainage, water supply, and rainfall. Varying environmental conditions provide varying availability of resources and thus regional variations in human activity. Since the semi-arid steppe of eastern Jordan lies beyond the effective limits of dry farming, the chief subsistence strategies of prehistoric groups were hunting, foraging and, in later periods, sheep/goat pastoralism. Chance agriculture may also have been practised in wadi beds where crops could receive some natural irrigation through surface runoff.

Where groups are only dependent on wild resources they can be more flexible in choice of site than when they have

to feed and water domesticated flocks. The primary requirements of hunting and foraging groups are the presence of game and availability of water. Water sources need only be small and may be widely spaced. Secondary requirements are the presence of edible plants, access to sources of raw materials, and contact with other groups. Where choice of site is dictated by the subsistence strategy of its occupants, it follows that distribution of sites, both locally and regionally, should reflect variations in such strategies. Archaeological work to date has shown that such patterning can be detected in sites of the Neolithic periods in eastern Jordan. It is proposed here to limit discussion of Neolithic site distribution in eastern Jordan to the Ḥarra, the basalt region, and the limestone region east of the Ḥarra up to the borders with Syria, Iraq and Saudi Arabia.

The introduction of pastoralism seems to have had a marked impact on site distribution. Preliminary findings from eastern Jordan suggest that pastoralism was first introduced into the economy around the early sixth millennium B.C., the beginning of the Late Neolithic period (Garrard *et al.* 1988; Betts 1990; Cauvin *nd*; Garrard and Baird *pers. com.*). Before this, evidence from sites in the steppe indicates that subsistence strategies involved only hunting, foraging, and trade/exchange (Betts 1988a, b; Garrard *et al.* 1988). Most sites of the Early Neolithic period are located in the Ḥarra. Very few have been found beyond the basalt region in the open steppe to the east. Sites of the first part of the Early Neolithic period—the Pre-Pottery Neolithic A (PPNA)—are very rare, but Pre-Pottery Neolithic B (PPNB) sites are common. There is evidence to suggest that these later seventh millennium B.C. sites are connected with intensive exploitation of the wild fauna (Helms and Betts 1987; Betts 1988a). Stage 1 at the site of Dhuweila is a typical example. The site is located well into the Ḥarra, on high ground thickly strewn with

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basalt cobbles. It consists of a small cluster of habitation units in the vicinity of a complex of "kite" walls. These "kites" form an elaborate system of game traps which seem to have been used by the occupants of the site. Finds from Stage 1 include a large amount of animal bone, much of which represents gazelle. Other animals include equid and hare; no ovi/caprid remains have been identified (Garrard 1985; Martin pers. comm.). Approximately 25% of the chipped stone tools from the site consist of arrowheads. Similar sites have been found elsewhere in the Ḥarra (Betts 1988a). Typical locations are on high ground with a view over wadis or mudflats. Potential water sources are usually small *ghadirs* in neighbouring wadi beds. PPNB knapping sites are also common in the Ḥarra. These are usually found on hilltops overlooking the larger wadi systems.

There is apparently much greater variety in the types and locations of later Neolithic sites in the region. One group of sites which has been assigned to this period comprises the "burin sites" (Betts 1986; 1987; 1988a; Garrard *et al.* 1988). Typically "burin sites" are represented by a fairly dense scatter of chipped stone artefacts, a very high proportion of which are concave truncation burins. Such scatters may or may not be associated with structures of some kind, mainly low-walled enclosures. The few projectile points that have been recovered from "burin sites" in the Ḥarra are of Late Neolithic type, usually small, bifacially worked points; tanged, or leaf-shaped, in form. Transverse arrowheads also occur. The single C14 date for this type of site in the Ḥarra comes from charcoal recovered in soundings at Jabal Na'ja (Betts 1988b) and falls in the later half of the sixth millennium B.C. (7,430 \pm 100 b.p. OxA 375). However, there is evidence that this type of site, or at least its main type fossil—the concave truncation burin—has much earlier origins in the region. Recent excavations at sites in Wadi Jilat have shown that concave truncation burins, and associated drill bits on burin spalls, are found with diagnostic PPNB artefacts on sites of the seventh millennium B.C. (Garrard and Baird pers. comm.). This means that, although several of the "burin sites" in the Ḥarra can be securely assigned to the Late Neolithic period on the basis of associated diagnostic artefacts, others without diagnostic arrowheads may be earlier. The typical "burin site" found in the Ḥarra might be regarded as a fairly short-term camp site, although some in particularly choice locations may have been reused on a number of occasions. However, recent research has also shown that concave truncation burins are found in relatively high numbers on sites with more substantial architecture, a wider variety of material remains, and in different kinds of locations (Betts and Helms 1987; Betts *et al.* 1990). These sites might be seen as stations, again probably only occupied intermittently, but perhaps for longer periods of time and on a more regular basis. Since there is apparently

such a wide range of sites on which the concave truncation burin may be found in relatively high proportions, it is perhaps no longer appropriate to subsume sites of potentially disparate periods and characteristics under one label on the basis of a single diagnostic artefact. It is proposed here to refer to sites with few or no structures and a tool assemblage consisting almost exclusively of concave truncation burins as "burin Neolithic" camps.² Sites with substantial structures and toolkits with truncation burins in a mixed chipped stone assemblage including diagnostic artefacts will be referred to as Late Neolithic stations. "Burin Neolithic" camps in the Ḥarra are usually located along wadis where the basalt cobbles give way to water-laid sediment and vegetation. They often lie on east-facing slopes protected from the prevailing wind and adjacent to major areas of grazing. Arrowheads number less than 1% in the average toolkit. Faunal remains are scarce on all such sites but there are a very few ovi/caprid bones from Jabal Na'ja (Garrard 1985). In the limestone country east of the Ḥarra, "burin Neolithic" camps are largely restricted to major wadi systems where wide floodplains occur in conjunction with deeply incised wadi beds; this location thus provides the two main requirements: water from *ghadirs* and extensive grazing areas.

In addition, at least one Late Neolithic site in the Ḥarra appears to be primarily a hunting camp: i.e., Dhuweila in Stage 2 (Betts 1988a). The site was re-occupied in the Late Neolithic, suggesting deliberate selection of a location suitable for hunting. In relation to other Late Neolithic chipped stone tool assemblages, that of Dhuweila 2 has high proportions of arrowheads and preliminary analysis of the faunal remains suggest that ovi/caprids are minimally represented. The bulk of the animal remains are of wild game, chiefly gazelle and equid (Betts *et al.* 1990; Martin pers. comm.). There is also evidence to suggest that the "kite" systems were still in use in this period. In other ways, however, Dhuweila 2 is typical of Late Neolithic sites elsewhere in the region. The PPNB walls were re-used to create a small cluster of irregular occupation units. New walls were built using a construction technique of upright slabs supported at the base by rubble packing. A combination of simple drystone walling and upright slabs is found on most of the excavated Late Neolithic sites in the region.

Other, and apparently different, Late Neolithic sites have been found elsewhere. At the southern end of Qa' Dhuweila lies a series of small clusters of structures. A second cluster of sites has also been found in a comparable location a few kilometres to the east, on the edge of another large mudflat, Qa' al-Ghirqa. These sites have not been excavated but have been subject to detailed surface survey (Betts and Helms 1987). The preferred location for these sites is on the summit of a low rise, adjacent to large mudflats. The rise in elevation above the mudflats is slight

²For use of the term "burin Neolithic" see Garrard *et al.* 1988.

and is not usually sufficient to provide a good view of the surrounding landscape. This might suggest that higher ground was chosen merely to keep the occupants above the level of seasonal flooding. Each site consists of various structural elements. These are generally small rounded units, between five and ten metres in diameter, which are either free-standing or incorporated into enclosing walls. Various smaller, simpler structures are placed between them. Two kinds of construction techniques are used. Enclosures have simple, roughly coursed, single-line stone walls. The walls of the rounded units consist either of single upright slabs or double lines of masonry up to three or four courses high and covered with stone slabs in the form of rough corbelling. The chipped stone assemblage includes low proportions of arrowheads of diagnostic Late Neolithic type, and high proportions of concave truncation burins. No environmental data is yet available for these sites.

Similar, but subtly different, sites have been found around the lake at Burqu' on the eastern margin of the Ḥarra (Betts *et al.* 1990). Here excavations have been conducted at six Late Neolithic sites. All six sites are similar in terms of structures and material culture, but variations in the chipped stone assemblages suggest corresponding variations in activities, season of occupation or variations through time. Building techniques include both upright slab construction and simple drystone masonry. The sites are individual honeycomb networks of units, sometimes joined to other units by low enclosing walls. Preliminary analysis of the faunal remains indicates that sheep/goat represent a significant proportion of the bones on several of the sites (Martin, pers. comm.). Given the remote location in the dry steppe, it is likely that herding formed a relatively important aspect of the occupants' subsistence strategy. Wild animals are also present in the faunal remains, but arrowheads form only low percentages within the chipped stone assemblages. Choice of site location appears to be governed by the proximity of water and grazing land.

Despite the fact that study of the Neolithic periods in these regions is only at a preliminary stage, it is clear that there is variety in choice of site location and that this variety is linked, at least in part, to subsistence strategies. It might be suggested that sites of the Early Neolithic (PPNB), were located mostly in the Ḥarra where the nature of the landscape was particularly suited to hunting—especially to mass hunts using traps, i.e., “kites”. Further east, in the limestone country, there was little material for the construction of “kites”. Moreover it might be more difficult to control movement of wild game or to stalk individual animals in the open steppe. This area may have been exploited in the seventh millennium B.C. but, if so, probably much less intensively than the Ḥarra to the west.

There seems to be marked differences between sites of

roughly the same period among the Late Neolithic sites. It might be suggested that, whatever the relationship between the occupants of the various types of sites might be, the differences between them represent different subsistence strategies. This may not necessarily mean completely different ways of exploiting the landscape, but it is perhaps, more likely, indicative of seasonal differences in exploitation requirements. Two points emerge, whichever way the evidence is viewed. Firstly, “burin Neolithic” camps have a wide distribution over the dry steppe. Recent surveys have shown that they are common in the wadis of the Ruweished system up to the Iraqi border; earlier surveys have also recorded sites all the way across to the Euphrates, southwards into Saudi Arabia and towards Palmyra and al-Kowm in the north.³ At least some of these sites can be dated in the Late Neolithic, either through C14 analysis or by diagnostic artefacts. Within the area under discussion here, the more substantial stations, such as those at al-Ghirqa and Burqu', are so far restricted to the Ḥarra. The two basic types of site are different in a number of ways. The stations at Burqu' and al-Ghirqa saw regular re-use, possibly on a seasonal basis. They represent considerable investment in terms of construction and contain a variety of domestic and personal items among their remains. These include basalt rubbers and grinding stones, limestone rings and beads made of exotic materials, stone and shell imported over some distance. Chipped stone tools tend to be small, suggesting economical use of raw material. “Burin Neolithic” camps are common but have few structures. It is possible that they are so common precisely because of this. Like modern beduins, ancient pastoralists may have returned to certain areas on a regular basis. Where structures existed, they might be reused, but if there were no structures they would be unlikely to camp in exactly the same spot. This would, of course, result in concentrations of short-term camps. Occupation deposits on the camps are thin and the variety of tools, and other items of material culture are limited. Chipped stone tools tend to be larger than those found on the stations. All of this supports the hypothesis that “burin Neolithic” camps represent short-term occupation in favoured locations. The normal annual cycle among pastoralists in the Near East is one where groups disperse during winter and spring, when water and grazing is widely available, and tend to congregate during the summer in areas where water is perennially available, preferably somewhere adjacent to adequate pastures. It is possible, but by no means certain, that such a pattern is reflected in the type and distribution of Late Neolithic sites in eastern Jordan. Other explanations might include the existence of contemporary groups with different subsistence strategies, or division of groups into sub-groups, some of which are involved in one set of activities in a certain area, others exploiting different resources.

³See especially Field 1960, Adams *et al.* 1977; Parr *et al.* 1978; Hanihara and Akazawa 1979; Cauvin 1982; Yoshihiro and Sumio 1986; Betts 1987; Betts *et al.* 1990.

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