

Introduction

Sinai, defined by the rifts of the Gulf of Suez and the Gulf of Aqaba, is geographically distinct from both Africa and Asia, but also serves as a connection between them. Sinai has been the only land-bridge between the two continents throughout the Quaternary, and that the bridge has been crossed repeatedly is evident from the range of species living there now: “a dramatic meeting between Palaearctic and African forms” (Tchernov, 1979: 99). Historically, therefore, archaeologists have tended to emphasize Sinai’s connective rôle, and archaeological exploration has focused on the northern part of the peninsula (Bar-Yosef, 1985; Bar-Yosef and Phillips, 1977; Gilead, 1981, 1984; Gilead and Bar-Yosef, 1993; Gopher, 1985; Goring-Morris, 1987). However, during periods of lowered sea-levels in the Pleistocene, the land-bridge included what is now the Gulf of Suez, while, in the Holocene, crossing the Gulf directly from southwestern Sinai has involved only a short and relatively hazard-free sea-trip. The results of a preliminary archaeological survey carried out in southwestern Sinai in 1995 suggest that area may have played an important rôle in exchanges between Africa and Asia during the Holocene and may also have taken part in the regional development of social complexity.

The University of Washington Archaeological Expedition to Sinai conducted fieldwork in southwestern Sinai in 1995, concentrating in the areas of Wadis Sidri and Mukattab in the north, the lower reaches of Wadi Feiran, the plain of El Qaa and adjacent piedmont from Feiran to El Tur, and the coastal area from Wadi ‘Araba to Hammam Mousa (Figure. 1).

El Qaa, in particular, was previously essentially a blank on distribution maps of sites in Sinai, but this has been primarily a result of the lack of systematic survey. Rothenberg (1979: 112) records only three (undescribed) sites, clustered in one area of El Qaa, while Ujrat Suleiman, near El Tur (Gopher 1985), was found purely by chance (Bar-Yosef, *in litt.*, 1994; Goring-Morris, *in litt.*, 1994).

The Final Pleistocene-Holocene Sequence in Southwestern Sinai

El Qaa runs NNW-SSE from Wadi Feiran to the southern tip of Sinai, a distance of over 140 km, with a maximum width of 20 km near El Tur and narrowing to 3-4 km at its northern and southern ends. The plain is generally <100 m asl, with a low of 40-50 m asl at El ‘Awag. Structurally, El Qaa is a sunken half-graben (a sunken fault block), which created a depositional terminus for the streams draining the mountains of south-central Sinai. Today, it is crossed by numerous wadis running perpendicular to the coast. A major wadi, Wadi el-‘Awag (“the crooked wadi”), runs parallel to the Gebel Qabiliat ridge, the western boundary of El Qaa. Near the end of the ridge, the wadi has cut through a Tertiary terrace, which stands at about 60 m asl. The remnants of this terrace, about 4 km long and 0.5 km wide, are the most prominent topographic features within the plain of El Qaa. They also form the western edge of El ‘Awag playa, which contains the only major sequence of Holocene playa deposits in southern Sinai (El-Hinnawi, 1994).

Wadi el-‘Awag makes a conspicuous bend around El ‘Awag playa, where it is joined by several wadis draining the central Sinai mountains. The bend seems to be associated with the formation of a major alluvial fan at the mouth of Wadi ‘Araba el-Sugheir. Headward erosion of the fan led to the formation of the circular depression in

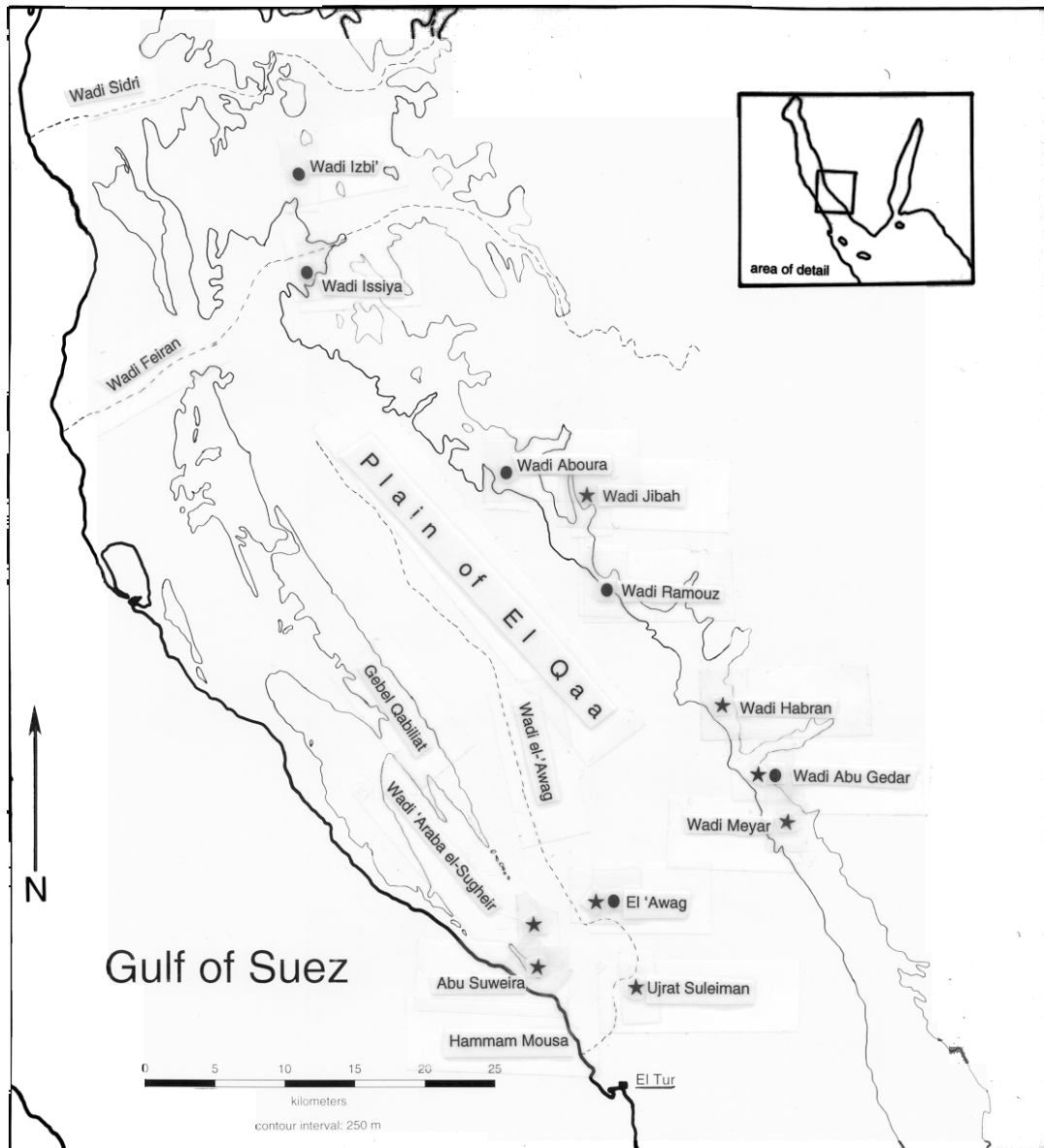


Figure 1. Map of southwestern Sinai, showing places discussed in the text. Circles indicate tombs; stars indicate other archaeological sites.

which El 'Awag playa formed, immediately adjacent to the isolated remnants of the 60-m terrace.

The modern course of Wadi el-'Awag divides El 'Awag playa into two parts, a smaller northern section and a much larger southern section. In the northern playa, the exposed sequence begins with a very poorly sorted, pebbly sand, with an upward enrichment in iron oxides (>75 cm). Fresh artifacts were found *in situ* in this unit.

They consist only of a few undiagnostic flakes and blades, but their presence suggests the high archaeological potential of the deposits. Above this, the same sand includes gypsum grains and encrustations (45 cm), and the upper part of the unit shows clear wedges, 40-60 cm deep, of moderately sorted, medium-grained sand, which is probably aeolian. This is conformably overlain by a thin (1-2 cm) layer of lag gravel. Above the lag gravel is a friable, cross-laminated, aeolian sand (30-45 cm) with prominent reed-casts. This, in turn, is overlain by a layer of silt (*ca.* 1.5 m), becoming gypseous near the top, where there are also occasional desiccation cracks.

The sequence in the southern playa was less well studied, is less clear and cannot yet be directly correlated with that of the northern playa. A section cut by Wadi el-'Awag begins with fine-grained, cross-laminated sand (1-1.5 m), overlain by a fluvial sand with pebbles and cobbles (25 cm). Above this is an aeolian sand with reed-casts (30 cm), a platy silt with gypsum encrustations (50 cm), and, finally, a unit of several cut-and-fill features of fluvial sand and pebbles (80 cm). Elsewhere, the gypsum underlies a burned layer, which is so extensive that it probably resulted from a bush-fire. The burned layer includes wood-charcoal, identified as *Acacia raddiana* and *Tamarix* sp., both of which still grow in the area. That these species of trees, rather than reeds, were burned indicates that areas of the former lake-bed were no longer even marshy, but were dry land at the time. Farther to the east in the southern playa, and at a higher elevation, is a thick (>4 m) section of playa sediments, highly dissected by aeolian erosion. This might be a lateral facies of the upper silt in the northern playa. However, it differs in hue from the latter, and might equally result from a playa phase not represented in the northern area. Elsewhere, above the erosional surface of the southern playa is a conspicuous layer of wadi rubble, with cobbles splintered by heat and salt crystallization. This was followed by downcutting to below the modern wadi level. Wadi alluvium, with partly carbonized vegetation, on a bench *ca.* 1 m above the modern wadi suggests a more recent phase of alluviation, before downcutting to the modern wadi bed.

These long sequences of wadi and playa deposits are probably terminal Pleistocene and Holocene, although they are as yet undated. They suggest higher rainfall in the early and mid-Holocene, with a dramatic reduction in the late Holocene. In the northern playa, the lack of rubble and small size of the gravel in the basal fluvial, or fluvio-lacustrine, sands indicate sustained streams with little or no torrential flow. Conditions then seem to have become drier and also cooler, which permitted a relatively high water-table, leading to the formation of gypsum near the surface. Still greater aridity is indicated by the wedges of aeolian sand, followed by an episode of deflation, creating the layer of residual lag. The presence of numerous reed-casts in the overlying sands reflects decreasing aridity, although the aeolian nature of the sands shows that vegetation was still sparse, until the full playa stage resulting in the deposition of silt. A return to more arid and cooler conditions is reflected in the gypsum and the desiccation cracks near the top of these silts. As observed above, this sequence cannot yet be correlated precisely with that of the southern playa, but the earlier part of the latter is generally similar. In contrast, the later part of the southern sequence, which is not present in the northern playa, is a complex of wadi alluviations

alternating with episodes of degradation and down-cutting. These suggest that rainfall was lower than in the earlier period, and was also much more episodic, perhaps with greater differences between seasons of the year.

The western edge of El 'Awag playa is bounded by a line of remnants of the Tertiary Al Qaa Formation, about 4 km long, and 0.5 km wide. The tops of most of the remnants in the south, adjacent to the playa, are flat and covered by a lag deposit of flint nodules. Scattered among them are quantities of flakes, Levallois cores and fine, large blades, suggesting a significant human presence in the area during the Middle and Upper Paleolithic.

The Funerary Tradition of El Qaa

Among and on the edges of the Tertiary remnants at El 'Awag is a series of almost 30 stone structures, most of which are tombs. These tombs are part of a previously unreported tradition which was widespread in southwestern Sinai. They are now known to occur from Wadi Izbi', in the northernmost part of the survey area, as far south (at least) as Wadi Abu Gedar (Fig. 1)

Most of the tombs at El 'Awag itself are simple mounds, 3-5 m in diameter, built of large stones available in the immediate vicinity. Thus, there are no tombs in the northeastern part of the remnants, where large stones also are lacking. There are also a few stone circles, 5-6 m in diameter. The most noteworthy structures are a group of four, aligned along the eastern edge of the remnants and the western edge of the playa. One ('Awag 1) is a stone circle, 7 m in diameter, with a small (2 m in diameter) mound attached to its northeastern side; three of them ('Awag 2, 3, and 4) are larger (up to 14 m in diameter) stone circles, each of which contains a central stone mound, 3-4 m in diameter. The largest of the four, 'Awag 3, has maximum dimensions of *ca.* 14 m and the outer structure, or enclosure, is more nearly square than circular (Figs. 2 and 3). It has a carefully constructed wall of large stones, with pairs and triplets of very large stones (up to 0.5 m high) set at intervals within the wall.

In the upper reaches of Wadi Izbi', a southern tributary of Wadi Sidri, there were eight large (15-20 m in diameter) stone circles, each containing a substantial, central, stone mound. These tombs are unusually large, and their social importance is underscored by their location on the watershed between the Sidri and Feiran drainages.

Five more, somewhat smaller, tombs were observed on low terraces near the mouth of Wadi Issiya, a southern tributary of Wadi Feiran. Some 2 km north of the mouth of the Wadi Aboura, a large, flat terrace bore a field of seven large tombs, on some of which the outer walls still reach a height of 1 m, and some, as at El 'Awag, tend to be square rather than circular. There were also smaller stone mounds without surrounding walls. Farther to the south, there are six large stone mounds (plus several smaller ones) on remnants of the fan outside the mouth of Wadi Ramouz, and four more (plus uncounted smaller ones) on fan-remnants immediately north of the mouth of Wadi Abu Gedar.

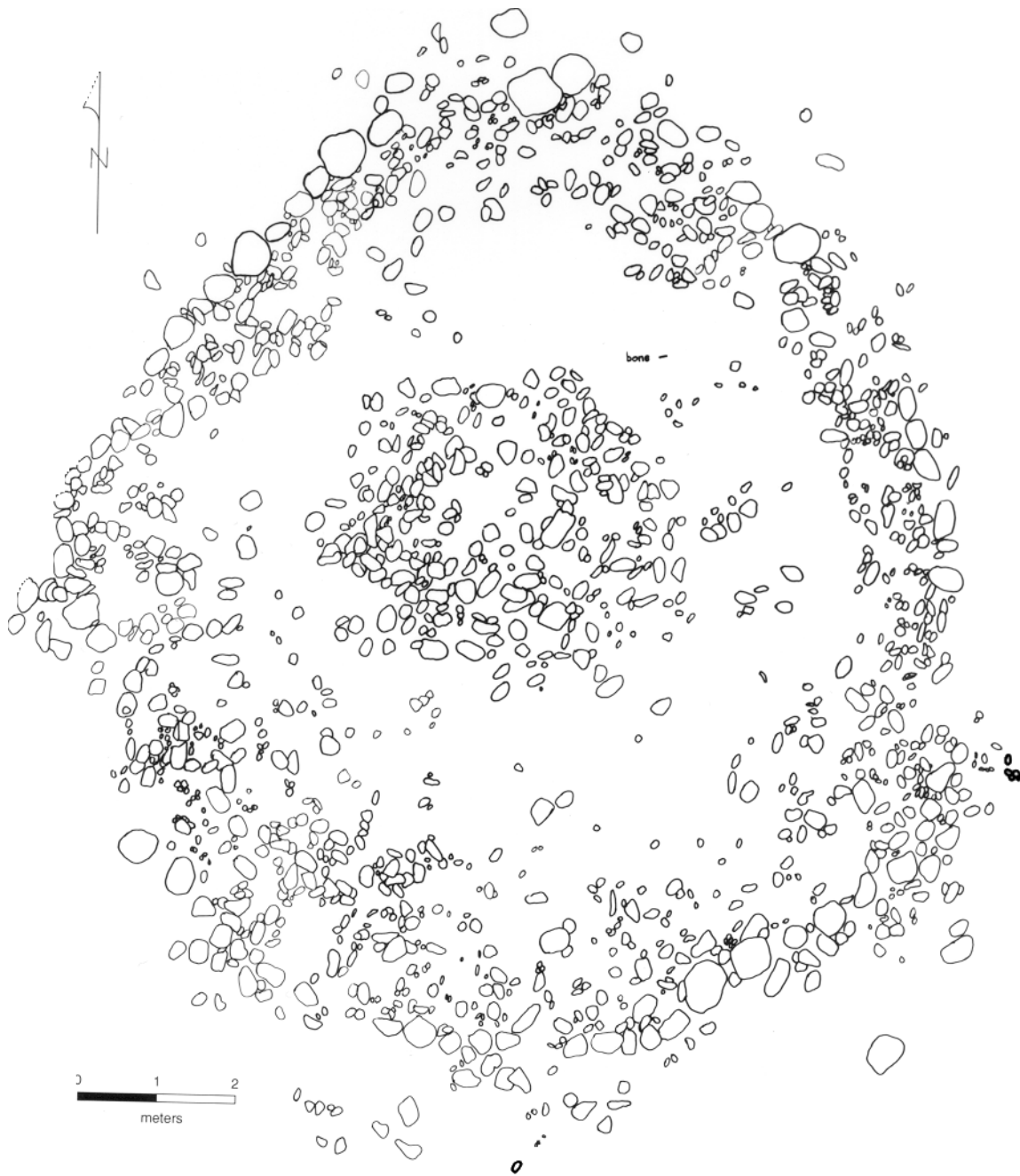


Figure 2. Plan of 'Awag 3.

All of the large tombs on the eastern side of El Qaa, from Wadi Izbi' to Wadi Abu Gedar, have been looted, some of them very recently since the sediments of the soil heaps are soft and uncompacted, and bones still lie on the surface. No trace of anything of value remains in the looted tombs, so we do not know what the grave-robbers seek, although turquoise is an obvious possibility. The activities of the looters show that the stone mounds inside the circular (or squarish) walls usually contain circular or small rectangular burial chambers, carefully constructed of very large stones.

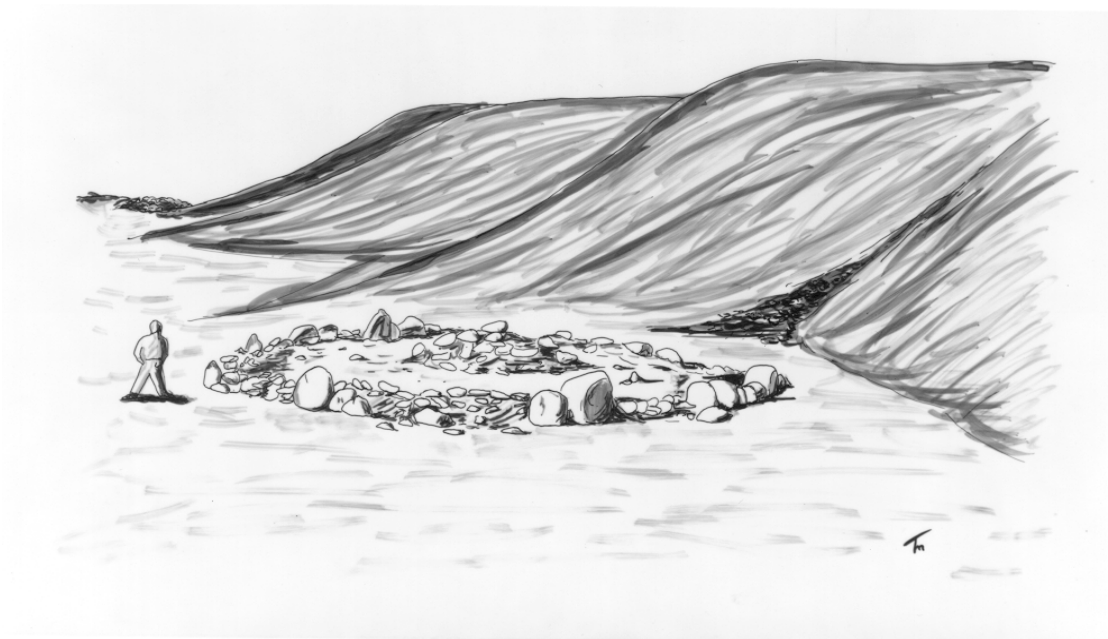


Figure 3. Sketch of 'Awag 3, looking south. 'Awag 2 is in the background.

The tombs known elsewhere in Sinai, the *nawamis* (Bar-Yosef *et al.*, 1977, 1983, 1986; Hershkowitz *et al.*, 1985), are substantial, double-walled structures, some 2 m high and 3-5.4 m in diameter (Bar-Yosef *et al.*, 1977: 67-70) and with constructed entrances. They were used for communal burials. The tombs in and around El Qaa are very different and are much more varied. All include a simple stone tumulus, but these range in diameter from little more than 1 m to almost 4 m. Most consist only of a tumulus, but some have circular or subrectangular enclosures of various sizes, and one at El-'Awag is attached to the side of a stone circle, rather than being enclosed by it. Nothing of this kind has previously been reported from Sinai, but Sadr and others (1994: Fig. 6) illustrate a very similar structure in far northeastern Sudan. At 25 m across, it is larger than any of the examples at El 'Awag, but, from the photograph, the outer enclosure does appear to be subrectangular, as is that of 'Awag 3 (Fig. 2).

Also unlike the *nawamis*, the tombs of southwestern Sinai seem to involve single inhumations. Some have a small (<1 × 0.5 m), rectangular stone cyst under the center of the tumulus, which is simply not large enough to hold multiple (or large numbers of) remains.

The Pastoralist Sites of El Qaa and the Introduction of Small Livestock

The funerary monuments of El 'Awag playa and Wadis Izbi', Issiya, Aboura and Ramouz are not directly associated with living sites. However, farther south along the eastern side of El Qaa, several such sites have now been identified.

The most important group is north of the mouth of Wadi Abu Gedar and in close proximity to the stone tombs there. These include the walls of more or less circular houses, one or two courses high, 2-8 m in diameter, and occurring singly or in contiguous complexes of up to eight “rooms”. Some are built so as to incorporate extremely large granite boulders into their walls (Fig. 4).

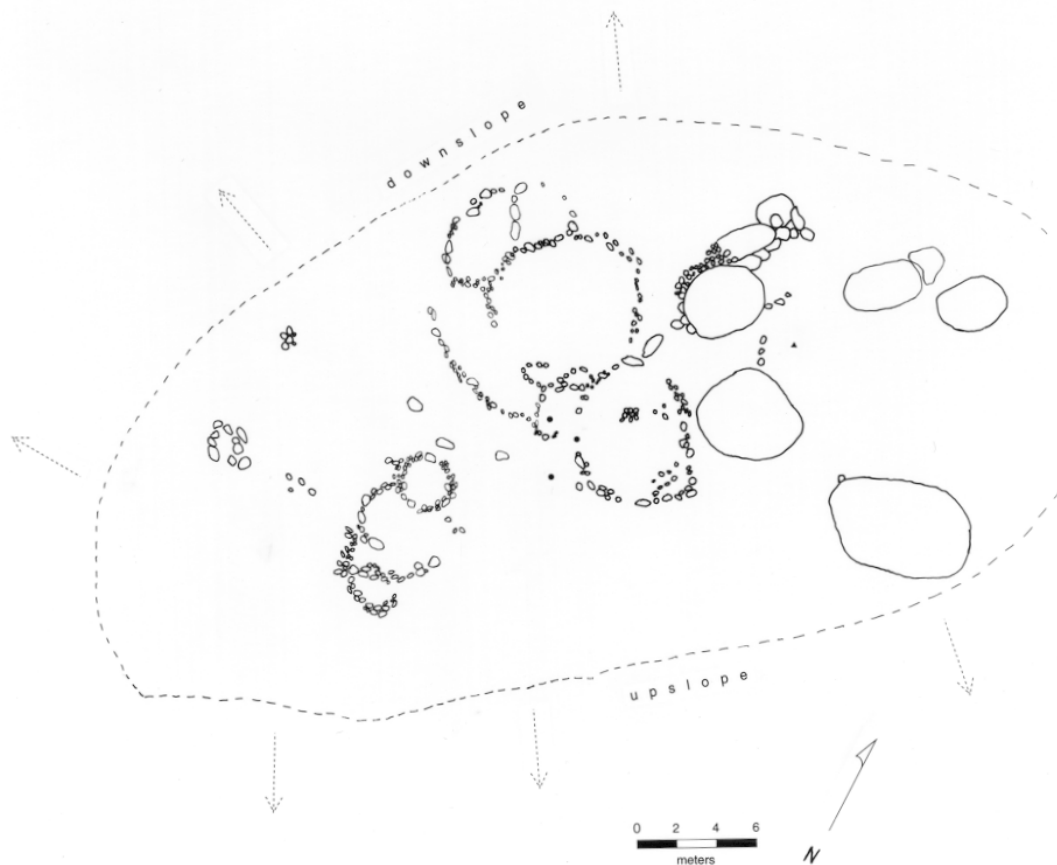


Figure 4. Complex of circular stone structures and large granite boulders at Wadi Abu Gedar.

These are very similar in form and construction to sites that have been identified elsewhere in southern Sinai as “Pre-Pottery Neolithic” (Bar-Yosef, 1983, 1984). However, the dating of the occurrences at Wadi Abu Gedar is more problematical. No pottery was observed, but there are actually very few artifacts at all on the surface. Inspection of one complex of structures yielded only five undiagnostic flint flakes and blades. Abu Gedar is only about 20 km from the flint outcrops in Wadi ‘Araba el-Sugheir, so that this virtual absence of flint would not be expected in a Pre-Pottery Neolithic site. These sites are probably, therefore, somewhat later.

There was also a complex of contiguous, square (5 m across) and circular (3 m in diameter) enclosures, which are reminiscent of the layout of recent Bedouin encampments, although of much sturdier construction (Fig. 5), and a more flimsily built oval structure that is some 50 m in maximum dimension.



Figure 5. Large rectangular and circular structures at Wadi Abu Gedar.

These are likely to be camps of early pastoralists, incorporating provision for both people and their livestock. The largest structure is perhaps best interpreted as a corral, and the walls may originally have supported a thornbush fence.

The faunal remains known from PPNB sites (>8000 BP) in southern Sinai are all apparently of wild animals (Tchernov and Bar-Yosef, 1982; Dayan *et al.*, 1986), while domestic sheep/goats are present in sites dating after 6500 BP (Bar-Yosef, 1984: 155-157). No faunal samples are available from the intervening period, which witnessed the introduction of small livestock into southern Sinai, but a somewhat more precise date for this introduction may be deduced from the evidence from adjacent parts of Africa.

Although Muzzolini (1993) has insisted that the wild progenitors of domesticated sheep and goats existed in Africa, it is more generally held that they were Asian (Clutton-Brock 1993: 68-69; Gautier 1980: 336), and that, from there, the domesticated forms diffused into Africa. It has long been assumed that the route was across northern Sinai, then westward along the Mediterranean coast and southward up the Nile Valley (for example, Baumgartel, 1952). In coastal North Africa, their earliest documented occurrence is at the Haua Fteah in Cyrenaica, where domestic goat and possible domestic sheep occur in the Neolithic and the Libyco-Capsian (Klein and Scott 1986: 524-526).

Dating of the cultural units in the Haua sequence is not always clear, since the site was excavated in arbitrary horizontal spits (McBurney 1967). However, the stratification also was essentially horizontal and an age of 6800-7000 BP is most likely for the Neolithic. Klein and Scott do not report from where in the Libyco-Capsian the domestic goat comes, to its age can only be estimated as pre-7000 BP.

Unexpectedly, there are no domestic sheep/goat of comparable age in northern Egypt. The earliest known examples, at Merimde and in the Fayum, are unlikely to be earlier than about 6000 BP (Hassan 1988). Instead, the earliest sheep/goats in mainland Egypt are from Upper Egypt and the southern part of the Sahara. In Upper Egypt, domestic goat has been positively identified at Sodmein Cave, in the Red Sea Hills, just after 7000 BP (Vermeersch *et al.* 1994). Goats are very common in some sites at Dakhla Oasis from 6500 BP onwards (McDonald, 1991: 47), and the presence of sheep/goat in the Middle Neolithic of E-75-8 at Nabta, some 100 km west of Abu Simbel (Gautier, 1980), has been reconfirmed by re-excavation (Close in press).

This last case is the most informative in terms of dating. The original estimate for the date of the sheep/goat was *ca.* 6700 BP; re-excavation has extended that back to about 7000 BP (Close in press). Some doubts were expressed (Wendorf and Schild 1984: 417) about the validity of the first finds, on the grounds that sheep/goat do not occur in any other Middle Neolithic site in the Nabta or Kiseiba regions. However, only two dated Middle Neolithic sites approach the time-period represented at E-75-8 (the first half of the seventh millennium BP). For one of these (E-77-5A at El Kortein), no faunal remains at all are reported (Gautier 1980). E-79-6, in the Kiseiba region (Wendorf and Close 1984), is more problematical, since it has a noteworthy faunal collection that does not include sheep/goat. However, its radiocarbon date of 7170 BP \pm 89 years is earlier than all of the Middle Neolithic dates from that part of E-75-8 which yielded sheep/goat. Thus, the absence of sheep/goat from E-79-6 and their presence at E-75-8 may reflect a chronological difference. If so, this would enable us to date the arrival of sheep/goat in the Eastern Sahara to within about a century of 7000 BP.

This is also in accord with the linguistic evidence. The reconstructions of Ehret, who is looking at the linguistic history of northeastern Africa in general, place the first appearance of words relating to sheep and goats in the Proto-Sahelian language (1993: 111-112, 116), which he dates to the mid-seventh millennium BC. This corresponds to about 7500-7000 radiocarbon years ago.

Present evidence thus suggests that these Asian domesticates appeared in southern Egypt (and northern Sudan?) earlier than in northern Egypt. The data from the Haua Fteah support a route along the southern Mediterranean coast, but the lack of early evidence from Lower Egypt would imply that domesticated sheep/goat may not have diffused southwards up the Nile Valley for several centuries. Their earlier occurrence in Upper Egypt indicates a second route of diffusion: southward through Sinai to the southern end of Gebel Qabiliat and across the Gulf of Suez. This agrees well with their early presence in the Red Sea Hills. This would also mean that contact between Upper Egypt and southwestern Sinai was already established before the end of the eighth millennium BP.

Social Structure in the Earlier Holocene of Southwestern Sinai

In pastoralist societies, domestic animals are frequently the major form of personal wealth (Bower, 1995), so their introduction into southern Sinai in the eighth millennium BP may be closely related to the initial development of social inequality, which seems to be indicated by the tombs.

Most of the clusters of tombs in and around El Qaa occur in areas lacking any other signs of prehistoric activity, and may therefore be regarded as formal cemeteries. An initial difficulty concerns their age. In Palestine, formal cemeteries first appear in the Chalcolithic (Levy, 1995: 234-235), which is dated to 4500-3500 BC, or about 5700-4700 BP (Gilead 1988: 399-407). The *nawamis* in Sinai have been very tentatively ascribed to the same period, Chalcolithic-Early Bronze Age (Bar-Yosef *et al.*, 1977: 87-88). All of these, however, are much more sophisticated in design and construction than are the tombs in the cemeteries at El 'Awag and on the eastern side of El Qaa. There is, thus, a probability that the Qaa cemeteries are somewhat older.

Cross-cultural studies have shown that the existence of formal cemeteries is consistently associated with corporate social groups, practicing lineal descent (Saxe, 1970, cited in Goldstein, 1981), although the converse is not true (Goldstein, 1981). Their use indicates concern with asserting territorial claims, to ensure that the group has control over, or access to, vital but limited resources. In this respect, the locations of the cemeteries within the landscape of southwestern Sinai are very suggestive.

The tombs on the eastern side of El Qaa are usually on the highest terraces above the plain, often at wadi mouths. This may indicate a primary concern with access to water, which is understandable in semi-arid Sinai, even during moister phases of the Holocene. In contrast, the very large tombs at the top of Wadi Izbi' are in a pass over the watershed between two major drainages. Such placement would indicate broader territorial concerns (in this case, perhaps a boundary) (cf. Hoika, 1987; Madsen, 1982; Midgley, 1992), or might be related to belief systems (cf. Tilley, 1994), or both.

At El 'Awag, the four largest tombs are aligned along the edge of the playa, which was the principal local water-source, and along the foot of the Tertiary terrace-remnants, which are the only important topographic feature in El Qaa. Other tombs at El 'Awag are scattered on the remnants themselves.

As noted above, the tombs in El Qaa differ importantly from the *nawamis* in that they were used for individual inhumations, while the *nawamis* were communal. This would suggest greater emphasis upon the individual in El Qaa, compared with that upon the corporate social group in the areas of the *nawamis*, to the north and east, with the corresponding implication that membership of a descent group was less important as a determinant of social status.

The possibility of higher individual status in southwestern Sinai might reflect the continuation of a closer relationship with the Nile Valley, where the Egyptian state began to crystallise shortly after the period in question. During the Badarian, the early Predynastic of Upper Egypt dating to the late fifth-early fourth millennia BC (Hassan, 1985, 1988), copper and turquoise were imported into Upper Egypt from Sinai. That these materials were not used in the contemporaneous Neolithic of Lower Egypt (Tutundzic, 1989) strongly suggests continued use of the direct route across the Gulf of

Suez from southwestern Sinai, rather than the strictly overland route through northern Sinai and the Nile Delta. This would accord with the apparent importance of El ‘Awag, located at the southern end of Gebel Qabiliat, which blocks access to the Gulf of Suez from anywhere farther north in El Qaa (Fig. 1). Given the likelihood of early, direct links between southwestern Sinai and Upper Egypt, control of access to the Gulf would have been of very high significance. The location – at the point of control of that access - and nature – energy-consuming, individual funerary monuments – of the tombs at El-‘Awag, in particular, suggest that southwestern Sinai played a rôle in the beginnings of the emergence of complexity in the Nile Valley.

Other Prehistoric Occurrences in Southwestern Sinai

Two definite Pre-Pottery Neolithic sites (PPNB) were already known before the 1995 survey, from the work of Bar-Yosef in the mouth of Wadi Jibah (Bar-Yosef 1977, 1983, 1984). Wadi Jibah 2, where Bar-Yosef did not recover charcoal, was relocated and one of the profiles was cleaned. This revealed the presence of pieces of charcoal, which have been identified as *Chenopodiaceae*, *Capparis decidua*, *Tamarix* sp. and a gymnosperm. The first is a true desert plant; the second, which has edible fruits, grows today in large wadis on the eastern coastal plain of Sinai, but not the western (Danin, 1983: 63); and third would indicate the presence of underground water, which may have been somewhat brackish (H. Barakat, pers. comm.). The gymnosperm is tentatively identified as *Cupressus sempervirens* (H. Barakat, pers. comm.). The only member of the Cupressaceae presently known from the entire region is *Juniperus phoenicea* (Boulos, 1995: 3), which tends to grow at high altitudes (Täckholm, 1974: 50), or in regions which are considerably better watered (optimally, 500-600 mm of rainfall [Danin, 1983: 104-105]) than southwestern Sinai today. *Cupressus sempervirens* is now known only as a cultivated ornamental (El-Hadidi and Boulos, 1988: 28-29; Täckholm *et al.*, 1973: 61). In the Nile Valley, its wood has been identified in Predynastic and Pharaonic contexts (Täckholm *et al.*, 1973: 74-75), when, as today, it may not have occurred naturally; it is thought to have originated in the (cooler and wetter) Aegean region (El-Hadidi and Boulos, 1988: 28). This suggests that, in PPNB times, southwestern Sinai enjoyed more rainfall than it does today (<25 mm pa) and was probably cooler.

A third Pre-Pottery Neolithic site, Wadi Jibah 3, was discovered on a second and higher remnant of a fan at Wadi Jibah; this site was not reported by Bar-Yosef.

Traces of earlier phases of southwestern Sinai's prehistory were less common. Paleolithic artifacts (including Lower Paleolithic handaxes) occur throughout the entire survey area, but almost all are in derived, or lag, positions and many are heavily aeolized. A small concentration of blades and bladelets, which may be Upper Paleolithic or Epipaleolithic, was found on a shoulder high above the mouth of Wadi Abu Suweira, where it drains into the Gulf of Suez. Somewhat farther to the east, near the confluence of Wadi ‘Araba el-Sugheir and Wadi el-‘Awag, flint outcrops on the hilltops revealed extensive and undisturbed evidence of use as quarries and workshops. Retouched tools are very rare here, but the artifacts include classic Levallois cores, indicating Middle Paleolithic activity, and quantities of fine blades up to 18 cm long,

which are most probably Upper Paleolithic. The outcrops are also the source for the flint used at sites in El 'Awag playa, and may have been the source for the Neolithic workshops briefly noted by Bar-Yosef (1984; Gopher 1985) at Ujrat Suleiman (Fig. 1).

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