Preliminary Report on the Archaeological Settlement Patterns of the Kassala Area

HISTORY OF SURVEY *

Before 1982, the Italian Archaeological Mission in Sudan (Kassala) (Iamsk) carried out small scale reconnaissance surveys around Hadaliya station, Aroma station, Amm Adam station, and Eriba station. Further surveys were carried out around Jebels Haboba, Keshaidari, Tukulabab, Mokram and Kassala. Khors Tagando, Shaitalit, Garatit, and Dilulayeb were also explored (Fig. 1). The results of these surveys have been published in the Iamsk's field reports (Durante, et al., 1980; Fattovich and Piperno, 1981; Costantini et al., 1982).

During the 1982 season, a systematic survey was made of the Shurab el Gash area (Costantini et al., 1983). In the 1984 season further surveys were carried out in the area between Jebel Kassala and the northern boundary of the Shurab el Gash (Colforti et al., 1984). These two seasons provided a more or less complete block of surveyed terrain, stretching from the areas of Jebels Kassala and Mokram southwards to the far reach of the Shurab el Gash (Fig. 2). These areas are referred to as quadrants K (for Kassala) and SEG (for Shurab el Gash). The quadrants correspond to the 15' squares on the 1:250,000 Sudan map of the Kassala area. In Hinkel's (1977) system these quadrants are, respectively, ND-37-A/14, and ND-37-A/20.

This report deals primarily with the results of survey in Quadrants K and SEG. This is for two reasons. First, I was not present during the reconnaissance of the areas outside of K and SEG. Second, the pre-1982 survey areas are spatially separated from quadrants K and SEG, in some

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Fig. 1. – Kassala Area; Geographical Map
Fig. 2. – Survey Areas and Sites; Quadrants K and SEG
cases, by large stretches of unsurveyed terrain. They cannot be easily
tied into the data of K and SEG sites. The pre–1982 survey information
will be used, as far as possible, in this report, but it will not be specifically
focused upon.

Intensive surveys, comparable to those in quadrants K and SEG,
were also carried out in quadrant KG (Fig. 3) by the Butana Archaeolo-
gical Project (BAP: dir. A. E. Marks). The results will eventually be com-
bined with the surveys of the IAMS K to provide information on settle-
ment systems at the regional level. For now, only incidental information
from the Butana Archaeological Project’s research will be used in this
report. (For preliminary information on the KG surveys see Marks, et

Site Nomenclature

The width of the survey transects (shown on fig. 2) have been set
as 1 km. This represents an average only. Sites of medium size and den-
sity are visible up to 500 m away in any direction. Larger sites can be
seen from farther, while smaller, low density sites cannot be seen beyond
cia 200 meters. If we calculate from the average, however, 309 sq km
were systematically covered within quadrants K and SEG (21% of total
area). One hundred and three sites are located within the surveyed por-
tions of the quadrants.

Until the 1984 season, site nomenclature consisted of an alphabetic
abbreviation of the name of the locality where the site had been found
followed by a sequential number. Thus, for instance, sites around the
base of Jebel Mokram were referred to as JM 1 through 5.

As more sites were recorded, it became obvious that such a profusion
of different alpha–numeric designations would become confusing. Accord-
ingly, for new sites, it was decided to use an alphabetic designation at a
larger scale. The most convenient fixed area was the 15’ squares which
are used as grids on the 1:250,000 scale series of Sudan Maps. All sites
bounded by latitudes 15°15’ and 15°30’, and longitudes 36°15’ and 36°30’
are now referred to by the letter K (for Kassala) followed by a sequential
number. Likewise, all sites between 15°00’ and 15°15’, and 36°15’ and
36°30 are referred to by SEG (for Shurab el Gash) followed by numerals.
In this report parts of both systems of nomenclature are used.

In the interest of streamlining the site nomenclature, Hinkel’s (1977)
system is also used throughout this text. Wherever individual sites are dis-
cussed, the IAMS K designation for the site is followed by the equivalent
designation in Hinkel’s system. Figure 2 shows the equivalent designation
for all sites. This information is also supplied as an index appended to
this report.
Fig. 3. - Eastern Sudan Study Area
The Kassala Area

Geographically and culturally, Kassala is a border area. At present, it straddles the contact zone between the semidesert to the north and the low rainfall woodland savanna to the south. On the east–west axis, the area lies between the Eritrean highlands and the central Sudan lowlands. Rainfall in the Kassala Area is between 200–400 mm pa., falling mainly between June and September. Elevation is 500 meters above sea level (Barbour, 1964).

In the Kassala area, there are a number of different microenvironments (fig. 1). In the north, the Gash delta provides a prodigiously fertile landscape at the very edge of the semi–desert. Between the eastern side of the delta and the Eritrean frontier there is an area of stony soils, intersected by several watercourses which flow westward from the highlands to the Gash.

South of Kassala town, at the apex of the delta, the Gash River flows for 25 km from the Eritrean border. The river is flanked by forested silt terraces. As in the delta, the present level of the water table provides a fairly reliable supply, which can be exploited directly in the wet season, and through shallow wells in the drier months of the years (Saied, 1969).

To the west of Kassala town and the Sudanese portion of the Gash River, is a stretch of steppe which reaches to the Atbara River valley. The steppe supports grassland vegetation with scattered acacia trees. It is intersected by a number of paleochannels, traversing generally from east to west and northwest. The rain pools at Malawiya, at the extreme west edge of the Kassala area, are probably located in the depressions of one or more of these paleochannels.

In the southern part of the Kassala area, the Sharab el Gash is crisscrossed with paleochannels which still occasionally flood from the Gash overflow. The area supports dense acacia woodlands, separated by short stretches of open grasslands. The water table in this area is sufficiently high to provide a reliable supply in all but the driest time of the year.

In its cultural makeup, the Kassala area is equally diverse. The northern parts, including the delta, are occupied by the Hadendowa Beja. The areas around Kassala town are occupied primarily by the Halenga Beja, who are gradually becoming a part of the larger Hadendowa Tribe (Owen, 1973; Barbour, 1964). The Sharab el Gash is occupied primarily by the western sections of the Beni Amer Beja. The banks of the river Gash are settled by Halenga and Beni Amer villagers. To these are added seasonally elements of the Rashaida Arabs and various nomadic Beja sections (Fig. 4). The latter two are the principal exploiters of the western steppe.

Present land use is as follows (fig. 4): Irrigated garden agriculture is
PRESENT LAND USE
Quadrants K & SEG

SETTLEMENTS
- with brick and masonry structures
- with thatch roofed huts
- tent clusters
- isolated brick structures
- isolated thorn enclosures

AGRICULTURE
- irrigated garden plots
- irrigated agricultural scheme
- rainfed (runoff) fields

Map is based on Aerial photos of the SUDAN SURVEY DEPT. taken during December (post-rainy season)

Fig. 4. – Modern Land Use; Quadrants K and SEG
predominant in the delta and along the Gash; rainfed agriculture is practiced in the Shurab el Gash, along areas bordering the irrigated gardens, and around Malawiya; the western steppe and the isolated patches of grassland in the Shurab are exploited for grazing by herds of cattle, camel, sheep, and goat.

*Paleo-Environments*

Overall, there has been a gradual drying trend in Northeast Africa since the early Holocene. Warren (1970), based on his work on dunes and prevailing wind directions in Kordofan province, postulated a four staged sequence of environmental change since the Pleistocene period. In period I (terminal Pleistocene), an arid environment existed north of 10°N; that is, extension of the desert to 450 km south of its present position. Period II (the early Holocene; ca. 12,000–7,000 BP) was wet with a shift in the rainfall belt to 250 km north of present positions. Period III was dry with a shift in rainfall belts to 200 km south of present positions. Period IV, around 6000–5000 BP, was wet with an accompanying shift in climatic belts, to 100 km north of present positions.

Wickens' (1982) speculations based on paleobotanic evidence, are in general agreement with Warren's (1970) estimates. For the terminal Pleistocene, he postulates a dry cool and windy climate under desert conditions, as far south as between 10–12°N. For the early Holocene (12,000–7,000 BP), he envisions a wet and warm climate. Vegetation in the Kassala area would have consisted of deciduous savanna woodlands (see Fig. 3.5 in Wickens 1982, p. 40). The area would have been bordering thorn and grass savanna in the north. For the middle Holocene (5000–3000 BP), he postulates a drying climate, placing the Kassala area in a thorn savanna environment. In the past 3,000 years the drying trend has continued, resulting in the present position of the Kassala area in a thorn savanna environment bordering on semi-desert.

The combined evidence from these studies suggests the following pattern of changes in rainfall for the prehistoric Kassala area: Rainfall in the terminal Pleistocene, would have been below 72 mm; in the early Holocene (ca. 10,000–5000 BC), rainfall would, at its height, have been between 800–1000 mm; the period between 5000–3000 BC would have had a rainfall of around 100 mm, according to Warren, though Wickens does not provide any confirmation for this; rainfall between 3000–1000 BC was 400–600 mm; and, from 1000 BC to the present, 200–400 mm p. a.

Geomorphological studies in the Kassala area provide further information on the prehistoric environments. Coltorti et al. (1984) suggested that paleochannels, cutting across the western steppe, probably connected
the Gash to the Atbara River during the early Holocene or late Pleistocene. The present bed of the Gash, it seems, was probably cut after the middle Holocene. A wetter climate was postulated for the periods before the earliest archeological occupations in the Kassala area (Amm Adam and Malawiya Groups, ca. 6000-4000 BC).

NASA Landsat imagery (plate 1) gives an indication of the developments in the course of the Gash River. Evidently, there are successive channels, starting with ones that traverse east to west, at the south end of the Kassala area. Between these apparently initial channels and the present channel of the Gash there is an arc composed of a number of major and minor paleochannels. It is, as yet, not known conclusively whether they were functional simultaneously or represent a sequence of consecutive channel buildings. It is most likely that, initially, the channels migrated northwards through reduced flow and siltation of previous channels. Severe floods would have reactivated the older channels periodically. The presence of sites of the Amm Adam group (ca. 6000-4000 BC), with fish and hippo in their faunal assemblages, at the north end of the present Gash channel indicate that the steppe paleochannels must have been active prior to the earliest archaeological occupations in the area.

The Culture-Historical Framework

The Culture History of the Kassala area has been put forward by Fattovich and Marks (Fattovich, et al. 1984; Marks and Fattovich, 1984; Fattovich, 1984a, b). In this paper the settlements of the following groups are described:

1. Malawiya Group (ca. 5000-4000 BC)
2. Butana Group (ca. 4000-750 BC)
3. Gash Group (ca. 3000-1000 BC)
4. Mokram Group (ca. 2000-750 BC)
5. Hagiz Group (ca. 750 BC-AD 350)
6. Kathmiya Group (ca. 350 AD-650 AD)
7. Gergaf Group (ca. 1500 AD-1800 AD)

The problem facing the analysis of settlement patterns at this time is lack of control on the time scale. There are only a few 14C dates that provide absolute dating for the above sequence, and these come mainly from sites in the BAP's concession area (Marks and Fattovich 1984). Hence it is as yet impossible to say how many of the sites of each cultural group were occupied simultaneously or, indeed, whether there might have been a change in settlement systems within one of the longer lasting cultural groups.

In the future the problem can be solved by processing additional dates and seriating the ceramic assemblages within each group.
In presenting this preliminary report, it is necessary to make a number of assumptions which may in the course of time be proven wrong. We assume that all sites within each cultural group, as defined on the basis of the ceramic assemblages, represent parts of the same settlement system; also, that the settlement system of each cultural entity is a discrete unit, separate from the settlement systems of other groups. The latter assumption must be made in the cases of the settlements of the partially contemporaneous Butana, Gash, and Mokram Groups. For these, in the absence of sufficient data, we simply cannot say at what point in time each group might have been influencing, or been influenced by, one of the other groups; hence, we cannot yet fully address the question of the relationships in the settlement systems between each of these groups.

The Malawiya Group (Fig. 5)

According to paleoenvironmental reconstructions by Warren (1970) and Wickens (1982) and by the presence of Pila shells in all Malawiya group sites, we postulate that rainfall in the Kassala area at that time must have been somewhere around 600–800 mm pa, and that parts of the landscape were seasonally inundated by floods.

There are no remains of domesticated animals present in Malawiya group sites. Fattovich (1984a) ascribes the occupations to hunter/gatherers whose main focus lay on an exploitation of riverine habitats.

Intra-site Patterns

In quadrants K and SEG, there are three Malawiya group artefact occurrences; two of these are single component sites, while the third consists of some pottery mixed in the assemblage of a large Mokram Group site.

The two unmixed sites are quite similar. SEG 11 (20–R–2) is ca. 1 ½ ha. in area with a probable depth to the archaeological deposits of some 30 cms. SEG 42 (20–F–5), is about 1 ha. in area also with a ca. 30 cm. depth to its deposits. Both sites have a very high surface density of artefacts which suggests that the surfaces of the sites are slightly deflated.

At SEG 58 (20–F–11), the occurrence of Malawiya Group sherds represents quite a different type of occupation. Although its borders cannot be ascertained due to the later occupations, it is clear that it was neither as large nor as deep as the two unmixed sites. In comparison to them, SEG 58 (20–F–11) must represent a temporary occupation by a relatively small group of people. The unmixed sites, on the other hand, judging by their depth, must have been either permanently occupied or the inhabitants must have returned to the same spot on an annual basis.
MALAWIYA GROUP
SETTLEMENTS
Quadrants K & SEG

Fig. 5. - Malawiya Group Sites; K and SEG
It is not yet possible to say anything about the total span of occupation at the unmixed sites. If we assume that climatic conditions remained stable throughout the Malawiya Group's duration and that the two sites were simultaneously occupied, the highly advantageous location of SEG 42 (20-F-5), atop a prominent natural knoll, suggests that the site might have been in use throughout the span of the Malawiya group period.

It is estimated that a maximum of 40-50 huts or tents could have been placed on an area of 1-1 1/2 ha. This would represent an abnormally nucleated cluster of dwellings, although such cases of nucleation are ethno graphically known from groups inhabiting the seasonally inundated southern regions of the Sudan today (Bacon, 1922; Lewis, 1972; Jackson, 1923). During times when flood levels are inordinately high, as many huts as possible are placed onto any available piece of high ground. Such a situation might have been the case at SEG 11 (20-R-2) where the settlement was situated on a knoll barely larger than the site itself, but it seems improbable at SEG 42 (20-F-5) where the knoll is at least 10 ha. in area.

At the other extreme, there may have been as few as one or two huts in the 1 ha. area of the site. The inhabitants may have returned to the same spot on a yearly basis, thus creating the spread of artefacts now visible. This, however, seems unreasonable because the amounts of artefacts present suggest a more nucleated occupation. Reality must lie somewhere between these two extremes. Roughly, ten to twenty huts would seem to be a reasonable estimate, keeping in mind that, as the ethnographic evidence shows, the numbers are open to fluctuations from year to year. Most likely, the longterm Malawiya group occupations seem to have been hamlets or very large homesteads.

**Intersite Patterns**

All evidence indicates that SEG 42 (20-F-5) and SEG 11 (20-R-2) were rainy season home base settlements of the Malawiya group. Paleo-climatic evidence and the presence of pila shells in all Malawiya group sites, indicate that parts of the Kassala area were seasonally inundated. Under such conditions only the higher ground could have served as rainy season habitation sites: both SEG 42 and 11 are located on relatively high ground.

SEG 58, (20-F-11) on the other hand, is located quite low, only some 50 m away from the bed of a prominent khor. Unless we presume that the environment underwent a drastic change sometime during the span of the Malawiya Group, the low lying SEG 58 (20-F-11) must have been occupied in the drier parts of the year.

A hypothetical scenario for the relationship in settlement patterns between sites SEG 42 (20-F-5) and SEG 58 (20-F-11) might be as follows.
During the wet season – which in the areas of the 800 mm isohyet in the Sudan today last for approximately half the year (Lewis, 1972; Jackson, 1973; Barbour, 1964) – habitation sites of the Malawiya group would be found as hamlets located on high ground (often natural levees of the paleochannels), with access to both riverain resources and game and wild plant foods. With the retreat of the floods and the drying up of most of the swamps, game and riverain resources would have become concentrated in and around the few deep rain and river pools scattered in the countryside. In cases where the pools occurred immediately next to the base camps, we might presume that some or all of the inhabitants would have remained in the settlement. In cases where the distance became inconveniently long, we may assume that the occupants of the base camps would break up into smaller units, resettling by the pools in the ephemeral small camps, until the onset of the rains would again make it necessary to return to the high ground base camps. In the absence of any evidence that domesticated animals played a role in the subsistence strategies of the Malawiya group, it is not necessary to postulate seasonal movements of a greater magnitude than a shift from high to low ground settlements.

The validity of the above scenario is supported on two fronts. First, data from the surveys of the Butana Archaeological Project immediately to the west of the Kassala area show a very similar pattern. Second, the modern settlement patterns of ethnographically known groups, inhabiting seasonally flooded regions of the southern Sudan closely resemble our hypothetical scenario. Both the Anuak (Bacon, 1922) and the Murle (Lewis, 1972) follow a movement pattern from high ground base camps in the wet season, to temporary camps along pools and active waterways in the driest part of the year. Though both these groups are pastoralists to various extent, the grazing cycle of the cattle, and the settlement patterns of the herders (warriors) is quite separate form that of the main body of the camps, and is of no influence on the settlement cycle between high and a low ground.

There is, of course, the possibility of an alternative explanation. If our initial assumption, that the two types of sites are part of the same settlement system, is incorrect, we would have to postulate that within the time span of the Malawiya group there was a change from nucleated settlements, occupied for long periods of time, to small temporary settlements (or vice versa). Such a possibility is not too far fetched if we remember that according to the paleoenvironmental reconstructions the Malawiya group spans the period of a drying trend. Under such circumstances, as the level of the yearly floods decrease over time, settlement strategies may have shifted from nucleation on high ground to dispersal around those scattered pools which held water due to their favorable microenvi-
ronmental settings. The question, in any case, cannot be settled in the absence of securely dated assemblages.

The Butana, Gash, and Mokram Groups

These groups are partially contemporaneous, and closely related to each other in terms of similarities in their pottery decorations. The earliest of the three is the Butana, the latest the Mokram Group. During the second millenium BC, it appears that all three co–existed in the Kassala area.

In the absence of sufficient numbers of 14C dates, we cannot say exactly which sites were simultaneously occupied. Hence, it is not yet possible to speak of what influences each of the gorups may have had upon the settlement strategies of the other ones. For the purposes of this prelimenary report, the Gash and the Butana Groups are treated as one unit. They are, in any case, considered as facies of the same archaeological culture (Fattovich et al., 1984), and there are too few of the Butana Group sites in the Kassala area to justify dealing with them by themselves. The Mokram Group is treated in the next section.

Gash/Butana (Fig. 6)

Intra–site

There are essentially two types of sites, one of which can, on the basis of size, be further broken down into two varieties. Sites of the first type can only be interpreted as permanent villages. In the study area there are three of these; two of them classified as Gash Group and one as Butana. The sites are generally 8–10 ha. in area, and have a depth of about 1–2 meters. The Gash/Butana villages represent the largest and most nucleated settlements during the entire prehistory of the area.

Mahal Teglino (14–D–7) is the type site of the Gash Group, and the focus of the IAMSK research. At Mahal Teglino there are hints of habitation structures, as well as features which might be related to large scale production and distribution of pottery, and possibly ground stone.

JAG 1 (20–I–1), though unexcavated, appears to share many of the features of Mahal Teglino, and must be interpreted similarly. SEG 56 (20–G–7), a Butana Group site, is similar in terms of size and depth, but lacks the features, and is located differently from Mahal Teglino and JAG 1.

The matrix of these sites is refuse, ash, and sand. They appear to have been formed in a process similar to that of the Debbas of the southern Sudan, as described by C. H. Stigand (1918). However, this is not to say that there are further parallels between the Gash/Butana occupations and
Fig. 6. – Gash/Butana Group Sites; K and SEG
those of the present Equatorial region. The environment of the Gash/Butana period was much drier (Wickens, 1982; Warren, 1970) than those of present day Equatoria. There, the Debbas are related functionally to the seasonal inundation of the landscape, whereas in the Gash/Butana Groups, flooding should not have been at the scale demanding the construction of Debbas. The reason for such settlement nucleation of the Gash/Butana is not fully understood as yet.

The second type of Gash/Butana sites are smaller and have, at most, a depth of 10–20 cm. These can be provisionally broken down into two varieties. In the first variety, sites are up to 3 ha. in area; in the second, they are between 5–8 ha. Most of these sites are composed of separate and well defined concentrations of artefacts. The size of the concentrations is variable; generally there are more concentrations on the larger sites (up to 8 or 10) than on the smaller ones (anywhere from 1–5). The presence of isolated pieces of daub on some of these sites (SEG 52; 20–G–12), as well as on other Butana Group sites outside the IAMS study area, suggests that permanent structures existed. The separate concentrations of artefacts could be seen as trash dumps. The actual habitation areas, then, must have been between the concentrations of discarded artefacts.

The shallow depth of deposits of these sites, and the sporadic evidence for permanent hut–structures, suggest that they were hamlets and homestead occupied for a few years. Presumably, they would have been periodically abandoned, either because of the excessive buildup of refuse, or the exhaustion of resources in the immediate vicinity, or for some other less tangible reason. Examples of such settlement behavior are well known from ethnographic cases (cf. e.g. the Murle; Lewis, 1972, Nyangatom; Tornay, 1982, the Uduk; James, 1979 and the Ingessana; Evans–Pritchard, 1927).

The problem in the interpretation of the second type of settlements is in determining the functional differences between the small (1st variety) and large sites (2nd variety). One possibility is that the large ones represent hamlets, and the small ones individual homesteads; a situation which is compatible with what is reported in the ethnographic literature. On the other hand, the large sites may be reoccupied localities; i.e., they may have been formed by homesteads built on the site of previously abandoned homesteads. Both possibilities can be partially supported at this time; a definitive answer must await some careful intrasite work in the field.

Intersite Patterns

At the intersite level of analysis, it is necessary to break up the Gash/Butana Group into two sets. This division is principally spatial, but is echoed also in a variety of other archaeological factors. The first set is the cluster of sites concentrated in the area of the Malawiya. The other
includes the isolated sites of Mahal Teglinos (14–D–7) and JAG 1 (20–1–1).

In the cluster of sites, the relationship between the village site (SEG 56; 20–G–7) and the hamlets and homesteads is difficult to assess. It is unlikely that they were related as seasonally complementary settlements. As will be discussed in more detail in the next section, most of the Gash Group hamlets and homesteads do not resemble one season occupations. Nor are they located far enough away from SEG 56 to lend support to the seasonal dispersal hypothesis; the distances involved hardly call for large scale seasonal relocations of the settlements. If they are indeed related as seasonal camps to any sites – an arguable point, at any rate – they are more likely associated with either Mahal Teglinos or JAG 1. It is all the more unlikely that SEG 56 represents a seasonal nucleation of the inhabitants of the Malawiya cluster of homesteads and hamlets, since technically the village site is a Butana Group settlements, while the majority of the hamlets and homesteads are Gash Group sites.

The difference between the Gash and Butana Groups lies in slight variations in their ceramic assemblages. This is also echoed in their settlement types to some degree. The majority of the Butana Group sites (which are in the concession area of the Butana Archaeological Project, in quadrant KG) are villages, while the majority of the Gash gorup sites are hamlets and homesteads. Whatever the precise reasons for this difference, the presence of a Butana village site in the very same setting as a number of Gash Group hamlets suggests that there are no environmental reasons for this difference unless, of course, there is a significant time gap between the Groups. At this stage of research, a full explanation for the differences between the Butana settlement strategies and those of the Gash Group cannot be proposed.

A different aspect of intersite relations is that between hamlets and the homesteads of the Gash Group. The smallest of the sites, ones that occur as minor components in larger mixed sites, and small low density occupations, may have been very short term or even seasonal. This is especially so, in cases where they are located on low ground, close to the khor beds. Such settlements could have been occupied at the height of dry years. At the other extreme in site size, the hamlets might indicate settlement nucleation in particularly wet years; this seems likely in light of the fact that all hamlet sites occur on prominent knolls created by the levees of the paleochannels. The intermediate homestead sites then, might be seen as representing the 'normal' type of settlement.

Such a situation would have been similar to that of the present day Anuak, who prefer to live in dispersed settlements whenever the terrain and climate permit, but will nucleate in the event of high floods, or for defensive purposes (Bacon, 1922). The modern settlements of the Beni
Amer, who occupy the survey area today, are also instructive. Here, sites of various size from village to homestead, are simultaneously occupied. Whenever the situation demands it, occupants of those settlements which are inconveniently placed may elect to change their location temporarily. In all such cases, settlement systems are fluid, to allow for appropriate response to extremes in environmental and climatic fluctuations.

The situation of the two village sites of Mahal Teglinos and JAG 1 is completely different. There is only one other Gash Group site in a 10 km radius of Mahal Teglinos, and only one in the 5 km radius of JAG 1. Though admittedly survey coverage around these sites is not as intensive as in the Malawiya cluster, it is clear that the kinds of site density found in the latter never existed around the two village sites.

This might have been for the purpose of security. Mehal Teglinos’ location in a basin of Jebel Kassala is defensively very advantageous. JAG 1 is also located at the base of a Jebel. Although not in a basin, it is nevertheless in a good defensive position. The appearance of defensive location is strengthened by the situation of site K 26 (14–1–4). It is located in a narrow basin at the south end of Jebel Kassala. It consists of sporadic artefact finds on the low slopes of the Jebel on either side of the narrow basin. The mouth of the basin was closed off by an artificial wall of small boulders (plate 2). The site is not visible unless one is standing directly in front of it. It may have functioned as a permanent kraal, safely tucked away in the mountain and-guarded by a stone wall. (A possible alternative explanation might be that the wall functioned as water catchment; the proximity of the site to the river Gash, however, does not support this.)

*Alternative Explanations*

The preceding scenario for the Gash/Butana settlement patterns is presently the closest fit which can be found for a collection of data which is largely unanalyzed. It is open to testing and must not yet be seen as the final word on the subject. There are obviously other possible explanations.

One possibility – the next closest fit, so to say – is that the cluster of Gash Group sites in the Malawiya represent seasonal settlements of a nomadic population. The cluster could be seen as something like a Damar, which is a seasonal agglomeration of nomadic populations at a particularly convenient location (cf. e.g., the case of the modern Kababish settlement patterns; Asad, 1970). Such agglomerations occur around permanent water sources in the dry season. In the Kababish case, the Damar is characterized by the presence of well fields and generally a small nucleus of permanent trading settlements.

The Malawiya area fits this description quite well. The rain pools could have acted as a concentration of water during the dry season, and
the large Butana village (SEG 56; 20-G-7) could have functioned as a permanent settlement, servicing the nomadic populations in the smaller Gash Group sites. Under such conditions we would expect that in the rainy season the inhabitants of the seasonal settlements dispersed away from the Malawiya.

However, the intra-site nature of the Gash Group settlements in the Malawiya does not fit this scenario well. Fully nomadic populations are known to travel light. The material culture left behind at the Gash Group sites, however, cannot be characterized as a particularly light one. There are many varieties of grinding stones and a lot of pottery and flaked stone present.

Of course, one might argue that the density of artefacts is so high on Gash Group sites because they were re-occupied on a yearly basis. This, however, is unlikely. The discard of refuse at localities where occupation is repeated on a yearly basis, as in the Damar, should be of a nature which produces what is known as sheet midden. That is, refuse should be dispersed fairly evenly over a stretch of ground. An analogous situation has been shown in ethnoarchaeological works in the new world (Wilk, 1981). Logically, it would seem to apply to all cases of seasonally repeated occupations (although it would still be useful to test this ethnoarchaeologically in the context of NE Africa). Refuse at the Gash Group sites in the Malawiya is clearly not deposited as sheet midden. The existence of small concentrations of refuse on the Gash sites, bespeak a more organized method of trash disposal, which seems to indicate permanent or semi-permanent occupation.

This dicothomy in the nature of trash disposal between nomadic and settled populations, can be well appreciated, if we compare the Gash Group sites to other Group’s sites known to have been occupied for one season only. This is the case in the Gergaf Group to which we will return in more detail. At the Gergaf sites the nature of the materials left behind and the densities in which they are found are radically different from what we see at the Gash Group sites. It is difficult to say that the site of these two groups could have been formed by peoples carrying out similar settlement strategies.

In all fairness, however, it must be said that the issue is not yet settled in a sufficiently empirical way. More work is required before we can quantitatively distinguish between seasonal, permanent, and semi-permanent settlements. The nomadic scenario for the Gash Group sites, therefore, should be considered as a possible alternative hypothesis for the settlement systems, until better analytic techniques can be used in settling the question.
The Jebel Mokram Group (Fig. 7)

The environment at the time of the Mokram Group was quite similar to the present one, with rainfall somewhat higher than today (Wickens, 1982). Relative to the period of the preceding Gash Group, the climate would have been slightly drier.

On the basis of settlement types and patterns, there is a great deal of continuity between the Gash and Mokram Groups. A number of the larger Gash Group sites have Mokram occupations overlying them, although there is a general trend toward smaller and less nucleated sites in the Mokram Group.

For subsistence, there is evidence of sorghum cultivation during the Mokram Group. Figurines of cattle and possibly goat and sheep in the IAMSK's sites, and cattle bones in the BAP's sites, indicate the importance of pastoralism in the Mokram Group.

Intrasite Patterns

Site types in the Mokram Group are essentially the same as those of the Gash Group. There is one village site at Mahal Teglinos; it overlies part of the Gash Group occupation there. In size it is ca 1/3 to 1/2 the size of the Gash Group occupation. Its depth of deposit is about 50 cm, indicating a fairly long span of occupation. Possibly at JAG 1 there is also a long term settlement of the Mokram Group although no test excavations have yet been carried out to confirm this. There is another possible village site, K 10 (14-X-3), which is as large as the Mokram occupation at Mahal Teglinos but, judging from its un-mounded nature, probably not as deep as the latter.

The remaining Mokram Group sites are of varying sizes; there is a continuum in site size from ca. 4 ha. to under 1 ha. All of these (excepting the occurrences of Mokram artefacts as minor components in mixed sites) are formed of various numbers of artefact concentrations, which, as in the Gash Group sites, probably represent small middens. Many of the sites are located quite close to each other; if they were simultaneously occupied, they may have been considered as part of one large settlement.

The basic building block of the Mokram settlements appears to be an occupation area of between 1/2 and 1 ha. Fully one half of all Mokram sites are in this size range, which we might interpret as a single homestead type of settlement. Larger settlements then can be seen as agglomerations of homesteads into hamlet type settlements. Small clusters of sites, if they were simultaneously occupied, might be interpreted as a dispersed hamlet.

The same evidence that was used to determine that the Gash Group
Fig. 7. - Mokram Group Sites; K and SEG
settlements were occupied semi-permanently, also applies to the sites of the Mokram Group. The presence of distinct artefact concentrations on Mokram sites is, if anything, more convincing as representing a structure to the intrasite discard of refuse. The richness of the artefactual inventory at these sites strengthens the argument for a more-than-seasonal occupation.

Almost half of all the Mokram sites in the study area, mostly the larger ones, have one or more (up to six) mounded earth features associated with them. These were initially thought to have been remains of wells or well pools (Sadr, 1983). Investigations of the modern villages in the Shurab el Gash, however, suggest that they are more likely to have been associated with living quarters. The features are 15–20 m in diameter, and ca 1/2 m high. They are flat or slightly concave on top with steep slopes at the edges. The tops are generally devoid of artefacts. The features are not in any way associated with intrusive artefacts, therefore, there is no real reason to believe that they are not part of the Mokram occupation. Some of these mounded features are also found on sites of the Gash/Butana Groups and those of the Hagiz Groups. However, the association is strongest with Mokram Group sites. These may be the remains of single compounds¹, though only excavations can serve to confirm this.

For the Mokram Group sites there is no correlation between size of site and location on high or low ground.

Intersite Patterns

Assuming that our intrasite conclusions are correct, we might postulate that the occupation span at the homesteads are anywhere from ca. 5 years, to a maximum of a lifetime, judging from comparable ethnographic cases (Evans-Pritchard, 1927; Gamst, 1969; Holy, 1974; Tornay, 1981; James, 1979). At the larger hamlets and villages occupation would have lasted longer.

In contrast to the settlements of the Gash Group, the Mokram Group’s are more widely dispersed. Also in contrast, is the less defensive pattern of the Mokram site distributions. Or perhaps, the relative dispersal of the Mokram occupations can be explained in light of the apparent absence

¹ There is one problem with this interpretation; there is no good correlation between size of site and number of earth mounds, as one would expect if the earth mounds represented hut compounds. Also, if they do represent hut compounds, then our interpretation of number of habitations per settlement will have to be revised; in other words it will necessitate a reformulation of the hamlet/homestead classification.
for a need to defend. Whereas in the Gash Group the areas immediately around the isolated village sites were deserted, small and large Mokram Group sites can be found in the open plains and around the base of the Jebels in the vicinity of modern Kassala. Concurrently, the occupied area in the isolated Gash Group village (Mahal Teglinos) drops to half its original size. The implication is that parts of the inhabitants of Mahal Teglinos dispersed outwards into the plains, while the cluster around the Malawiya likewise expanded and dispersed more evenly across the landscape. In hindsight, the Gash Group sites around the Malawiya may indeed have been clustered for purposes of security.

As always there is a possible alternative explanation. The dispersal may actually reflect a shift in economic strategies. What the dispersal essentially accomplishes, is that it increases the catchment area available to each individual settlement. If this were born out of economic necessity, it would mean that either resources around the settlements were depleted during the Gash Group, or that during the Mokram Group new subsistence strategies required the harnessing of larger resource bases. The latter could have been the case if subsistence became more heavily dependent on domesticated animals, requiring, in turn, more extensive grazing grounds. Without additional data, it is impossible to say whether we might be dealing with a change in economy caused by depletion of resources, or introduction of new subsistence methods, or both. The testing of these hypotheses requires extensive collections of faunal and floral materials from both Gash and Mokram Group sites.

_Hagiz Group_ (Fig. 8)

_Intrasite Patterns_

Unmixed sites of the Hagiz Group are, generally, quite large. There is only one site under 1 ha., two between 1 and 2 ha. three between 2 and 3 ha., two between 3 and 4 ha. and one each in the categories 4–5, 5–6, 8, and 12 ha. The occurrences of Hagiz ceramics as minor components in mixed sites, represent the smallest occupations; under 1 ha. in area. The density of artefactual remains at Hagiz Group sites, is noticeably less than that of the Mokram Group. In none of the Hagiz Group sites are there distinct concentrations of artefacts.

The evidence points to a significantly more nomadic lifestyle than in the preceeding Groups. The widespread, low density carpets of artefacts found at Hagiz Group sites, suggest seasonal occupations possibly repeated at the same locality on an annual basis. Repetitive occupations at a particular locality should logically, after a number of years, result in a rather even dispersion of refuse over the entire locality. Judging by comparable
HAGIZ GROUP
SETTLEMENTS
Quadrants K & SEG
SITE SIZE (Hectares)

Fig. 8. – Hagiz Group Sites; K and SEG
ethnographic cases (cf. eg. the Kababish, Asad 1970) individual encampments will be placed more or less randomly, rather than according to a prescribed structure, which is rigidly adhered to year after year. The annual random shifts in the specific locations of individual tents would result in an even spread of materials discarded rather than in the buildup of distinct middens.

This evidence is, however, partially countered by the presence of low earth mounds (as described in the previous section) on five of the Hagiz Group sites. However, there is some question as to whether they are associated with the Hagiz occupation; at all five of these sites there is a minor component of the Gash or Mokram Groups mixed into the assemblage of the major Hagiz Group component.

If, however, the earth mounds are associated to the Hagiz Group, they can only be reconciled with the hypothesis of full scale nomadism if they represent something like trading posts or other such permanent structures sometimes associated with seasonal conglomerations of tent encampments. In any case, taking into account that the nature of the earth mounds is not yet empirically known, the evidence for seasonal occupation appears more compelling.

This would suggest then, that the smallest of the Hagiz group sites represent seasonal occupations. The larger sites represent either a single season occupation by large numbers of individuals, or annually repeated occupations at one locality, by a smaller group.

**Intersite Patterns**

The relationship between the large sites and the small sites is unlikely to have been as complementary seasonal occupations. This is because both types of sites are found in the same microenvironmental setting. The maximum distance between a small site and its nearest large site is never greater than 5 km, a distance that hardly calls for seasonal displacement of entire settlements.

The large and small sites are not arranged according to topographic setting; for instance, high and low grounds respectively. Also, since there are roughly equal numbers of large and small sites, it is difficult to support the point that the small sites represent the seasonally dispersed population of the larger sites.

It would seem rather that the different sized sites represent parts of a fluid settlement organization where settlements are composed of a few, or many encampments, depending on individual choices made.

What is more likely to have been a spatial expression of seasonal variations in settlement locations is the clustering of the sites in two distinct groups. As figure 8 shows, there are two clusters; one in the Ma-
lawiya, and the other along the Gash. It is interesting to note that the
distance between the large sites of the different clusters is some 15–20 km.
This distance is approximately the maximum grazing radius for cattle
herds, among a number of ethnographically known tribes in the Sudan
(Ingessana, Berti, Anuak, Murle, Nyangatom respectively, Evans–Pritchard,
1927; Holy, 1974; Bacon, 1922; Lewis, 1972; Tornay, 1981). Beyond
this distance, cattle herds cannot be returned to the settlements where
they originated within the same day.

Among more sedentary groups, when grazing within this radius is
depleted only the herders move out beyond to establish ephemeral cattle
camps for themselves. If, however, entire groups were to be specialized
herders, we might postulate that the whole settlement moves off once it
becomes necessary to expand beyond the grazing range.

If seasonal movement between the clusters is indeed the case, we can
assume that, since the Malawiya are dry in the drought season (just befo-
re the rainy season), settlements there would have been occupied primarily
in the rainy and post-rainy seasons. The Gash River area, where water
can be had year round would have been occupied in the drier parts of
the year.

Alternatively, it is possible that both clusters were settled during the
same season. In such a case, we would presume that the sites at the other
end of the seasonal rounds would have been outside the areas surveyed
in the IAMSUK concession area. Under such conditions, it could be that
the surveyed settlements represent post rainy season occupations, while
during the rainy season there would have been dispersal to the north.
Alternatively, the known sites were settled in the wet season, while dry
season settlements may have occurred to the south. The question cannot
be settled until more surveys and analyses have been carried out.

The Khatmiya Group (Fig. 9)

This group is tentatively dated to the period after the Hagiz Group.
All the available information for this Group comes from three tumuli
fields scattered at the base of Jebel Kassala. No habitation sites are known;
hence, little can be said about its settlement patterns.

The absence of habitation sites can be interpreted in two ways. Either
there is only one nucleated habitation site of the Khatmiya Group in the
entire Kassala area; namely under the modern town of Khatmiya, or
peoples responsible for the Khatmiya Group’s cemeteries were nomadic
populations to the east of Kassala, and only used the base of the Jebels
as a place for the interment of their dead.

Both possibilities can be partially supported by negative evidence.
Fig. 9. — Khatmiya Group Sites; K and SEG
There are no habitation sites of the Khatmiya Group anywhere within the surveyed area. Thus, if some indeed existed, they must now be covered by the modern towns at the base of Jebel Kassala, since there are no other places where it could possibly be. The fact that the modern cemetery of the town of Khatmiya lies on the same spot as one of the tumuli fields of the Khatmiya Group, lends some support to this hypothesis.

The alternative explanation – that there never were any actual habitation sites in the area – can also be partially supported. Around almost all the Jebels in the study area, there are graves and tumuli of one sort or another (see Fattovich, 1984b). Many of these cemeteries, however, have no associated habitation sites. This suggests that there is no real reason why there should have existed a Khatmiya Group settlement in the area. If this is the case, then the habitation sites of the Khatmiya Group must be in the east, since they are not anywhere to the north, west, or south of Jebel Kassala. The issue cannot be resolved until more surveys are undertaken.

The one thing that is amply clear at this time, is that in dealing with the Khatmiya Group, we are faced with a major cultural change in the entire study area. Unless we are mistaken in terminating the Hagiz Group occupations by the Fourth Century AD (and the weight of circumstantial evidence suggests we are not), during the time of the Khatmiya Group, the entire survey area was unoccupied.

Gergaf Group (Fig. 10)

The Gergaf is the last archaeological group in the study area. A preliminary note on its ceramics and settlement patterns has already appeared in print (Sadr, 1984).

Intrasite Patterns

There are only some nine unmixed Gergaf sites in the survey area. The rest, about 34, are found as minor components in mixed sites. All the sites and occurrences are less than 1 ha. in area, and have a very scattered low density artefact cover. Of all the other archaeological groups in the area, none approaches the ephemeral nature of the Gergaf sites.

Gergaf sites cannot be interpreted as anything but one–season occupations of a small number of individuals. In the case of the relatively larger sites, we might think of occupations which included more individuals, or which represent a location where a number of unrelated seasonal occupations are superimposed.

It is surprising that there are no other types of Gergaf occupations
Fig. 10. – Gergaf Group Sites; K and SEG
found in the Kassala survey area. As was reported elsewhere (Sadr, 1984), there are large Gergaf sites in the Khashm el Girba survey area, in the concession of the BAP. It would seem reasonable that such large sites, which probably represent seasonal agglomeration of populations, should also be found in the Kassala area. It is possible that these do exist, but have not yet been located. They may have occurred close to the edge of the Gash river where they may now be covered by the modern villages and agricultural fields.

*Intersite Patterns*

Since the typical small, low density Gergaf sites are scattered in the entire survey area, it is safe to assume that they could not have been occupied in the dry season, since water availability would have been a problem. It is most likely that they were occupied during and after the rainy season when the pools in the steppe would still have been able to supply sufficient water for the people and herds.

During the driest season, occupations should have concentrated around the river, and areas in the Shurab el Gash, where subsurface water could have been exploited through shallow wells.

*Note on Burials*

There are a number of distinct styles of graves present in the Kassala area. (A full listing of different types of burials and their locations is available in Fattovich 1984b). Quite often, the style of the superstructure is found to correlate with the location of the burials; thus a certain type of superstructure may occur only around a particular Jebel. Unfortunately, in most cases the cultural affiliation of the burials are unknown, since no ceramics are found on the surface. Thus, except for the Khatmiya Group, we cannot speak of cemeteries for any of the archaeological groups mentioned in this text. This is unfortunate, since knowledge of the location and types of cemeteries associated with the different groups could contribute to an understanding of the settlement systems.

In general, burials and cemeteries are found in the vicinity of rock outcrops and other places; for instance, along the river where rock is available. This is, of course, something of a tautology; burials are defined by the presence of a stone superstructure, hence, not surprisingly, they are found in areas where the raw material for the superstructure is available. If burials existed which did not have a stone superstructure, we are not equipped to recognize them (yet another possible explanation for the Mokram Group's earth mounds?). In any case, until the cultural affiliations of
the different tumuli can be recognized, burial data cannot be used in the settlement pattern studies.

REFERENCES


**APPENDIX I**

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