

BIRGIT KEDING

Leiterband sites in the Wadi Howar, North Sudan

The Wadi Howar is one of the longest dry river systems in the Eastern Sahara, stretching over 1000 km from eastern Tchad to the Nile. Today the central Wadi Howar appears as a shallow depression between 4 and 8 km wide, where bushes and small trees can be seen from far away as a greenish line in the desert. In the Rahib Mountains the wadi is blocked by sand dunes and this was looked upon as its terminus until it was proved to be a tributary of the Nile by an interpretation of satellite photographs (Meissner and Schmitz 1983) and field survey.

Freshwater molluscs from the wadi sediments confirmed the Wadi Howar to have still been an important river in the Early Holocene (Pachur and Kröpelin 1987). Later the river became a chain of freshwater lakes fed by local rainfall separated by dunes. Today the groundwater is tapped by small wells at Rahib and allows seasonal stays by small nomad groups.

Little was known from the area before 1920 (Rhotert 1934) but travellers then began to mention the archaeological richness of the region (Maydon 1923: 34 - 41; Newbold 1924: 43 - 92; Newbold and Shaw 1928: 164 - 171; Shaw 1936: 43 - 92; Bagnold 1933: 103 - 109).

In 1933 the Frobenius team collected pottery ascribed to the Nubian C-Group by Hölscher (1955: 53 - 58), and accepted as such by Bietak (1979: 126), but finds by the BOS group of the University of Cologne (Kuper 1981: 86) showed that C-Group-like patterns were greatly outnumbered by a ceramic complex now known as "Leiterband" (Kuper 1981; Richter 1989).

One of the most important sites with Leiterband ceramics, Djabarona 84/13, is located on the southern bank of the central Wadi Howar (Gabriel *et al.* 1985) south west of Jebel Rahib on a very flat dune. The area of this site is remarkable for it covers nearly 1 km²; more than 1000 dense concentrations of bones and sherds with artefact scatters between characterize it. Comparisons of topographic features and artefact distribution show that the concentrations are lying mainly on the dune top with a few concentrations near the edges (Fig. 1).

Some surface concentrations were shown to be pits of up to 2 m depth filled with strata of bones and ceramics imbedded in very fine dusty grey sediment; this suggests the majority of surface concentrations are pits in different state of erosion. Excavated pits contained between 200 and 14,000 g of archaeological material, the contents comprising mainly pottery and bones.

In contrast to pottery and bones, the stone artefacts, made of quartz, fine grained quartzite and chalcedony, have mostly been found outside the pits, in the artefact scatters between them. The industry is dominated by microlithic elements, mainly micro-tranchets and tanged micro-tranchets are dominating (Fig. 2). They show a wide spectrum of shapes in all stages of transition. Denticulated and notched pieces and borers are fairly rare. There are numerous fragments of broken heavily used grinding stones. A special feature are ground axes of Darfur-type made of greenish stone (Newbold 1924: Pl. IV). A remarkable number of fragments and flakes from cutting edges were found.

The stone inventory does not match those from further east (Arkell 1953; Caneva 1984: 357; Nowakowski 1984: 345) or west (Courtin 1966: 270 - 278) and the characteristic feature of the Leiterband-sites, the numerous types of micro-tranchets, are missing in neighboring areas. Nevertheless the inventory has some features, such as segments and axes, in common with the Khartoum Neolithic (Arkell 1953). The differences in the typology may be explained by chronological differences and as a result of a different type of exploitation of the natural environment.

The ceramic material was found in two main classes: small sherds with worn edges and large sherds from nearly complete vessels. The pottery is reddish-brown, thinwalled, burnished and chiefly sandtempered. Within the limited range of forms, globular (Fig. 3: 4) and bag-shaped (Fig. 3: 5) vessels with round bottoms dominate. Some vessels have rims showing four ears, two of which are perforated for suspension. The outside of the pots are decorated with bands, encircling the vessel parallel to the rim. About one hundred different variants were identified, most of them versions of the Leiterband which has decorated and undecorated bands alternating each other (Fig. 3: 2 - 5; 4: 4).

Two techniques of decoration were mainly employed: incision as rim ornament and (comb)impression, particularly the rockerstamp technique, as wall-ornament. For this technique two implements were used; the first group are implements with plain or continuous serrated edges, the second group are implements with a gap (Fig. 5). Implements producing this kind of decoration were already known from the Khartoum Mesolithic and Khartoum Neolithic in the Nile Valley (Khartoum: Arkell 1949: Pl. 88: 2; 1953: Pl. 31: 32).

Implements with plain (Fig. 4: 1) or continuously serrated edges (Fig. 4: 2) were used to make zig-zag patterns on 20% of the material from site 84/13 (Fig. 2) and had been over a long time and a very wide area. Both plain and serrated zig-zag patterns have been found in the Nile basin in the Khartoum Mesolithic at Khartoum (Arkell 1949: Pl. 65, 90: 2) and in the Butana area at Shaqadud (Otto 1964: 11: Fig. 27d,g,h), in the A-Group (Nordström 1972: Pl. 132) and at Kerma (Gratien 1978). These zig-zag patterns were also present west of

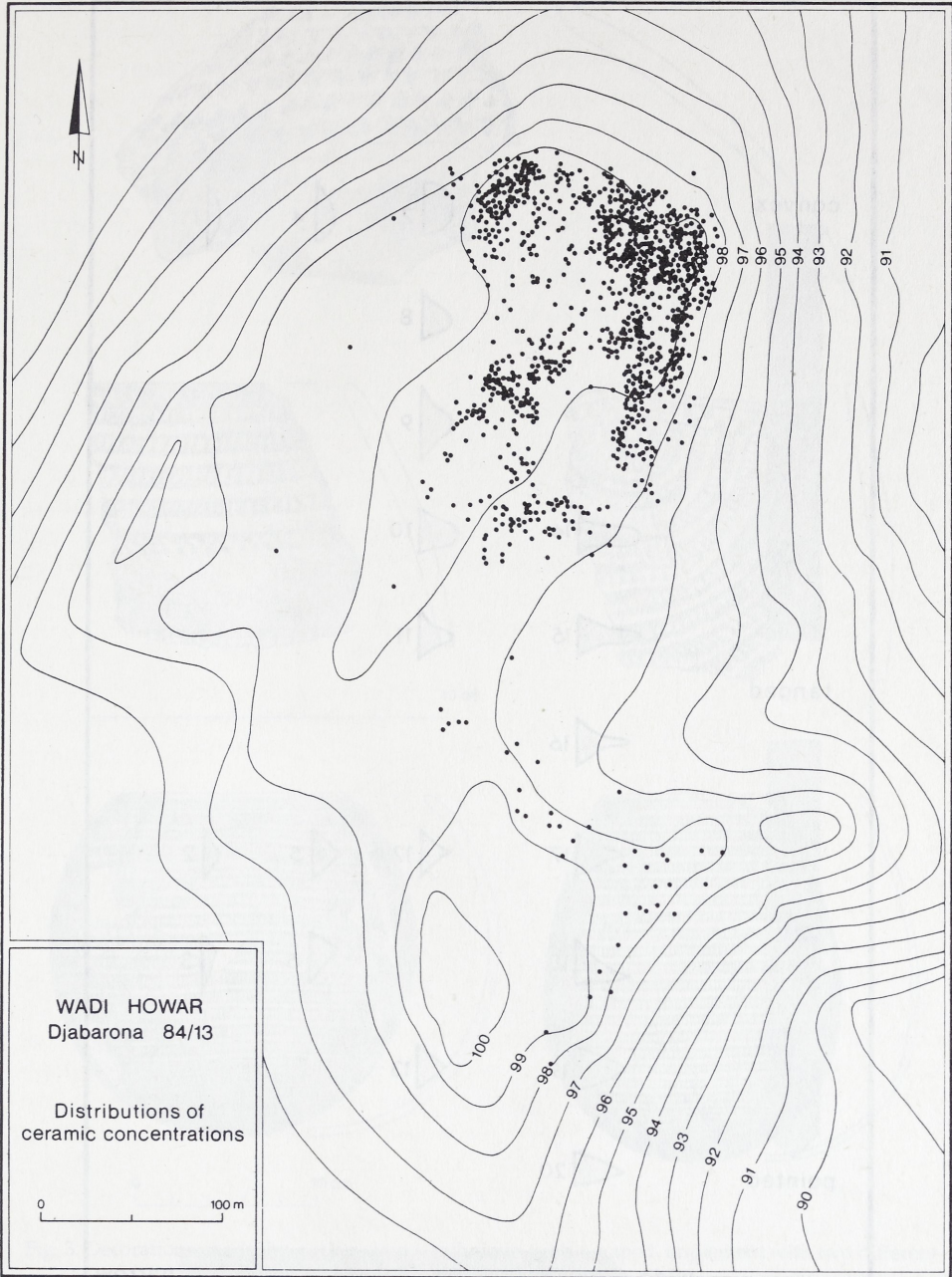


Fig. 1. Djabarona, site 84/13. Map of site, showing bone and ceramic concentrations.

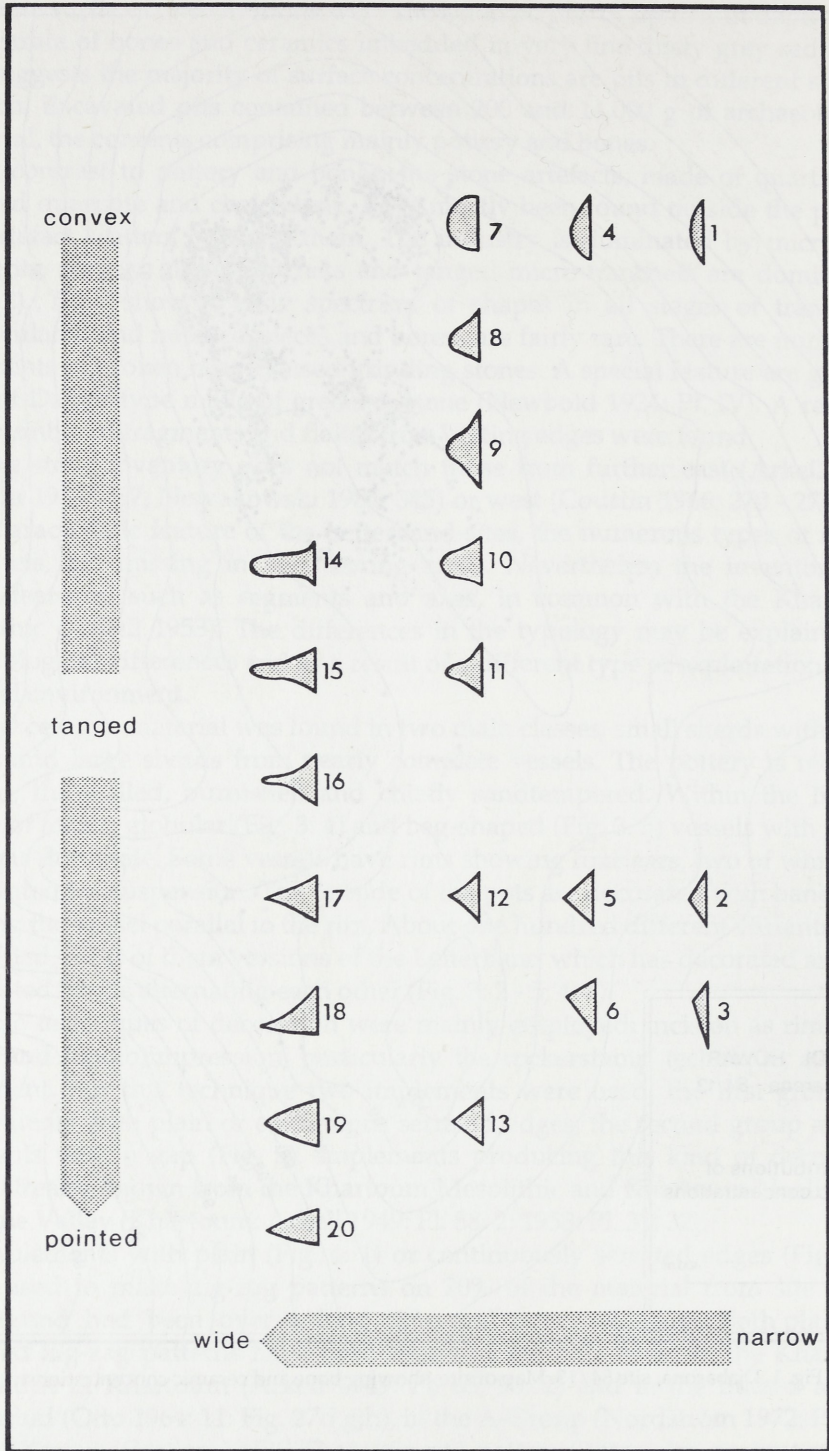


Fig. 2. Djabarona, site 84/13. The spectrum of microlithic elements.

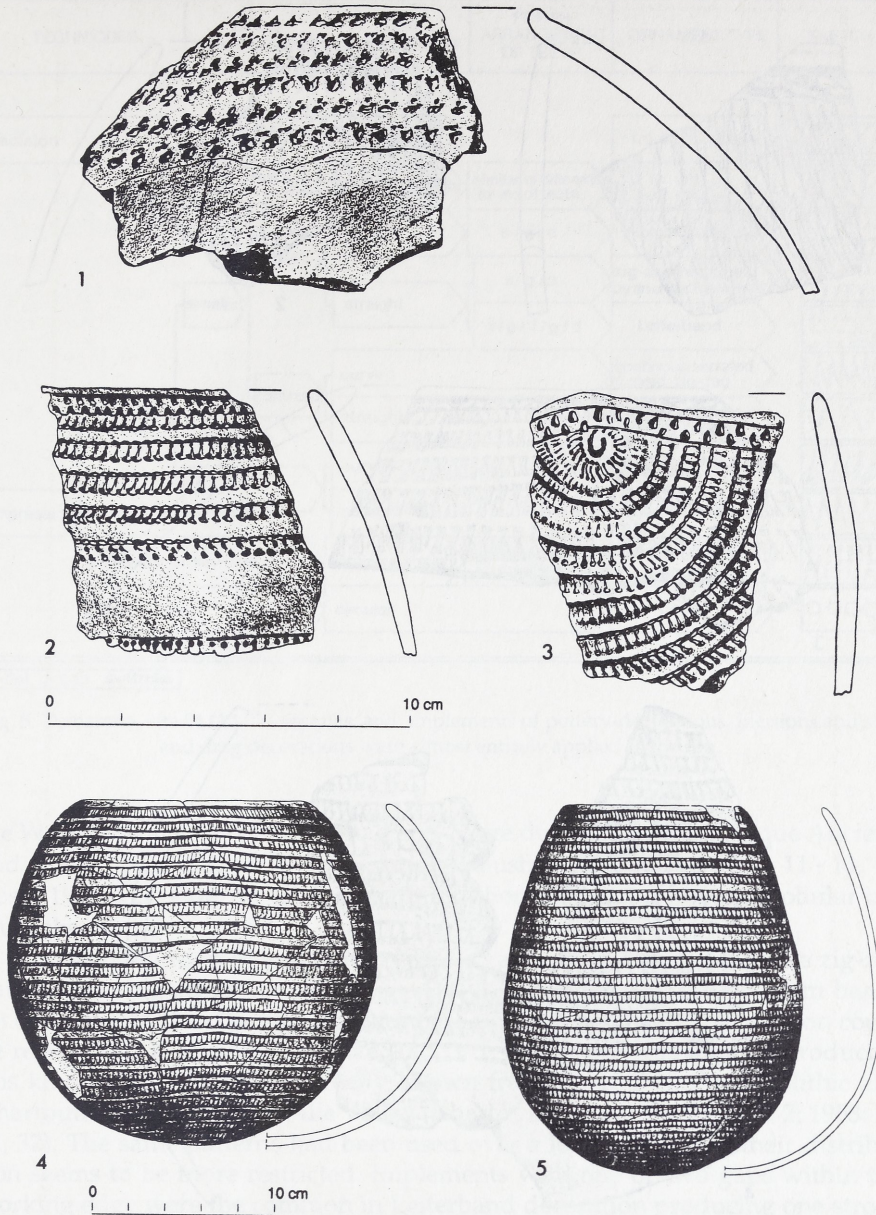


Fig. 3. Decorations made by rocker-stamp technique with a gaped implement with two different forms of teeth, not overlapped;

2 - 5: Leiterband decorations at site 80/86.

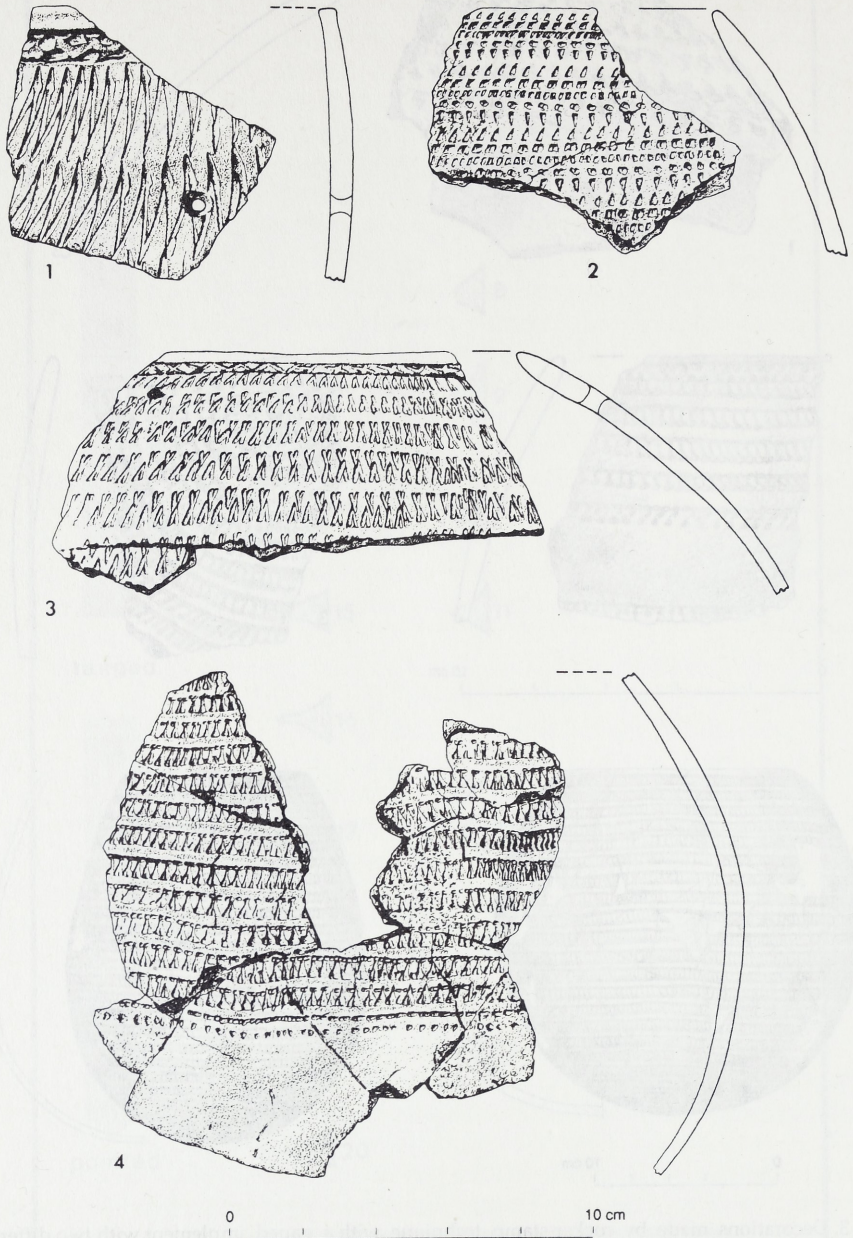


Fig. 4. Djabarona, site 84/13. Decorations by rocker-stamp technique using different implements; 1: implement with plain edge; 2: implement with continuous edge; 3: implement with gap in the centre producing sequence stroke-gap-stroke; 4: implement with one or two gaps producing sequence stroke-one or two gaps-one or two dots, partially overlapped.

TECHNIQUES	EDGE OF IMPLEMENT	FORM OF IMPLEMENT	FORM+ ARRANGEMENT OF TEETH	ORNAMENT TYPE	SKETCH					
Incision	not exactly distinguished tools		similar of different forms of teeth	f. e. criss-cross						
				serrated	curved or straight					
					curved	s / g / d	Halbmondeleiterband			
				gaped	straight	s / g / s	zig-zag interrupted by an undecorated row			
					straight	s / g / d / g / d	Leiterband			
				continuous	curved		continuous serrated curved zig-zag			
					straight		continuous serrated straight zig-zag			
				plain	curved		plain curved zig-zag			
					straight		plain straight zig-zag			
				Impression	serrated	continuous straight	similar of different forms of teeth	parallel rows of impression		
								Stab + Drag	dots	
								Simple Impressions		

d=dot g=gap s=stroke

Fig. 5. Djabarona, site 84/13. Techniques and implements of pottery-decorations. Incisions and stab and drag decorations were almost entirely applied to the rim.

the Wadi Howar, in northern Tchad and Nigre during the "Néolithique Ancien" and in the "Néolithique Final" (Treinen-Claustre 1982: Pl. 2: 4 - 6, 6: 11 - 13, 42; Roset 1983: 127; Courtin 1966: Fig. 23), but here they occur not on globular but on necked pots.

The second group of implements with a gap in their edges produce a zig-zag pattern interrupted by an undecorated row (Fig. 4: 3). These rows form bands set one beneath the other on the sides of the pot, so that every impression could be recognized in its form and size (Fig. 3: 1; 4: 3). Such implements producing this kind of decoration are already known from the Khartoum Mesolithic and Khartoum Neolithic in the Nile Valley (Khartoum: Arkell 1949: Pl. 88: 2; 1953: Pl. 31, 32). The same patterns had been used over a long period but their distribution seems to be more restricted. Implements with one or two gaps within the working edge were the common in Leiterband decoration producing one stroke and one or two dot-impressions which were set in rows overlapping each other; it is necessary to find the last row, which has not been overlapped, to recognize the shape and the length of the gap-implement (Fig. 3: 2 - 5; 4: 4). So the Leiterband decorations have been produced by a modified implement which had been already known in the Khartoum Mesolithic and Khartoum Neolithic, but is now used in a more complicated form of the traditional technique.

Compared with assemblages to the east and west of the Wadi Howar the Leiterband complex shows closest resemblance to the Khartoum Neolithic in the Nile Valley. Although the inventories differ in detail, general traits, form of vessels, pattern of design and technique of decoration are similar, but in the variety of zig-zag ornaments present in the Nile Valley the Leiterband style is missing. So far only three sites outside the Wadi Howar basin have yielded a few Leiterband-like fragments, mostly small and heavily eroded (Wanyanga: Arkell 1964; Delebo: Bailloud 1969; Erg Jmeya: Petit-Maire and Riser 1983). The present distribution of Leiterband finds is concentrated to the Wadi Howar where a local stratigraphy in a parabolic dune (Gabriel *et al.* 1985) showed Khartoum Mesolithic pottery from the deepest level followed by Laqiya pottery from intermediate levels and rocker-stamp and Leiterband pottery in the uppermost level. The exact relation between Leiterband and Khartoum Neolithic pottery demands further study for zig-zag band and Leiterband ornament are both developments of the rocker-stamp technique and Leiterband patterns can be looked upon as developed out of less complicated zig-zag band patterns. If this has any chronological value the Khartoum Neolithic was a predecessor to the Leiterband and assemblages containing nothing but Leiterband pottery thus would be the latest. If this is true the Khartoum region and the central Wadi Howar basin would have first been within the cultural complex known as Khartoum Neolithic and later this connection was broken and the Wadi Howar ceramic tradition underwent a local development (Richter 1989). This might have been when the lower Wadi Howar dried up and mobility between the two regions decreased. An important source of information about the ecology and economy of the Leiterband people is the bones which have mainly been found in pits and which never show any cutting-traces. Cattle dominate at site 84/13 and there is no doubt that cattle were still kept in the Early Holocene. There is still lack of explanation for the surprisingly good condition of the bones for there are complete skeletons in many pits. Only a few bones come from wild animals but some very shallow pits were full of fish-bones of which fourteen species could be distinguished. Fishing must have been possible as well as cattleherding.

Site 84/13 shows evidence for repeated occupations which caused the artefact scatter, the large area of the site and the pits filled with pottery and bones of cattle which show no traces of butchering. In spite of intrasite details still under discussion, Leiterband people can be shown to have lived within a very well defined and limited area which was climatically still favorable enough for an economy based on cattle and fish, although acacia and zizyphus plants grew in the area (Neumann 1989). According to ethnological models, transhumant cattle pastoralists might well have had their dry season camps here, the cattle being concentrated around the campsites close to the water.

Another kind of camp might have been on parabolic dunes in the plains around the lower Wadi Howar east of Djebel Rahib. Here high quality palaeosoils have been found and dense grass cover must have existed until the 2nd millennium B.C. allowing the dunes to retained their shape. The beginning

of the sequence from zig-zag band to Leiterband patterns is not properly dated but comparisons with the Khartoum Neolithic suggest a beginning between 5,700 B.P. and 4,500 B.P. for the zig-zag band complex which was then fully replaced by Leiterband styles in the Wadi Howar by 4,000 - 3,300 B.P.: 4,000 ± 200 B.P. (KN 3405) to 3,360 ± 120 B.P. (KN 3416) on site 84/13 and 3,530 ± 120 B.P. (KN 2940) on site 80/86. The Wadi Howar sites demand special attention because they prove intensive settlement at a time when an archaeological hiatus exists in the Nile Valley (Fattovich, Marks and Mohammed-Ali 1984).

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