Bolesław Ginter and Janusz K. Kozłowski

The Tarifian and the origin of the Naqadian

The state of research on the origins of the Neolithic cultural units from the Nile Valley in Upper and Middle Egypt is entirely unsatisfactory. There are two reasons for this: our generally poor knowledge of the Early Holocene cultures (aggravated by the considerable hiatus between them and the Neolithic), and the similar paucity of our knowledge about the Neolithic cultural units themselves.

Particularly striking in the region concerned is the wide gap – both cultural and chronological – dividing the latest Epipalaeolithic cultural unit – Elkabien, dated to the turn of the 7th millennium B.C. (C14) and based on a pre-ceramic, microlithic, geometric blade industry (Vermeersch, 1970; 1978), from the earliest ceramic units including the Badarian whose dates do not exceed the 5th millenium B.C. (C14).

Our knowledge of the Badarian and the subsequent cultural units of Naqada I and II is equally deficient. While it is true that the stratigraphic sequence of the site at Badari (Hemamieh) indicates the basic features of the cultural evolution, nevertheless the definition of the various cultural units is based not on the stratigraphy of settlement assemblages, but on highly selective materials from the cemeteries classified according to the principle of sequence dating. Radiocarbon dating of the units distinguished in this way, *e.g.*, Naqada I and II, does not confirm that they form a sequence, thus pointing to the need to verify both the diagnostic elements for the individual units and their chronological position (Cf. Kaiser, 1956). This will be possible only when we have at our disposal clearly stratified settlement material. Unfortunately, the stratigraphic sequence of the site at Badari (Hemamieh) – despite the many interesting suggestions arising from the account published by Brunton and Caton-Thompson (1928) – does not enable us to reconstruct in full the assemblages occurring in the different levels. The other settlement sites in the area (these total to about 40 in the regions of Badari/Qau, Matmar and Mostagedda) also deny us the possibility of fully exploiting the stratigraphic observations, mainly because they have been excavated by means of random exploration levels, without sufficient attention to the cultural-stratigraphic and lithologic units. The same applies to the

site, with the relatively best documentation, at Armant (Mond and Myers, 1937).

In view of the above situation it is worth drawing attention to the importance of the stratigraphic observations made at the site of El Tarif (despite the comparatively small area of the undisturbed Predynastic strata, preserved only fragmentary between the two 4th Dynasty mastabas). The site, located at the point where the low desert meets the cultivation area, was investigated by Arnold (1974) and subsequently by the authors of this paper (Ginter *et al.*, 1979).

The site rests on the gravel deposits of the recent pediment deposits composed of material originating from the destruction of the Theban limestones and Esna slate which surround the low desert zone. As can be seen from the profiles situated directly at the foot of the Theban Gebel, in the area of Qurna village the deposits are later than the silts of the Sahaba-Darau aggradation. On the surface of the gravels, part of which forms a kind of calcareous breccia, Late Palaeolithic artefacts occurr containing backed elements (arched backed blades) alongside the Levallois elements. The gravels themselves, on the other hand, contained, in secondary position, both Upper and Middle Palaeolithic artefacts. The surface of this sediment is intersected by some older rain channels. On the basal gravels there rests a loamy sediment containing fine gravel. The composition of the loamy fraction does not include quartz or feldspars, and its mineral composition suggests that it is of eolian origin. The thickness of this layer fluctuates between 2-20 cm. and it yielded some heavily eolized artefacts connected with the new cultural unit defined as the Tarifian.

Above this layer we also found loamy sediments, but without archaeological material. Preserved only in parts, the sediments include in their composition: products of the laterite weathering of the rocky substratum and, above all, clay minerals from the illite group and the ferrous oxides: hematite and getite. This bears witness to the transport of material belonging to the destroyed red soils on the slopes of the Gebel.

On this series lies the black anthropogenic level consisting, to a considerable degree, of ash and charcoal as well as clay minerals and carbonates. It was this sediment which yielded the settlement levels associated with the Naqadian which subsequently were intersected by a younger generation of rain channels. Part of the Tarifian finds from the loamy sediment form fairly restricted concentrations of artefacts of the "kshemenitsa" type, one of which was associated with a hearth approximately 0.5 m in diameter. The rest of the finds were loose and did not form any distinct planigraphic structures.

The flint inventory of the Tarifian yielded by the excavations of Arnold as well as our own totals approximately 5,400 artefacts (Fig. 1-3). These include 110 cores and 561 retouched tools (not including unidentified fragments). Flakes are more numerous than blades which account for less than 10% of all products. Similarily, among the tools flake forms are more common than those made from blades. Over 80% of the total were made from the local grey Theban flint. Imported raw materials are negligible. Our attention is drawn to the lack of care taken, or even the arbi-

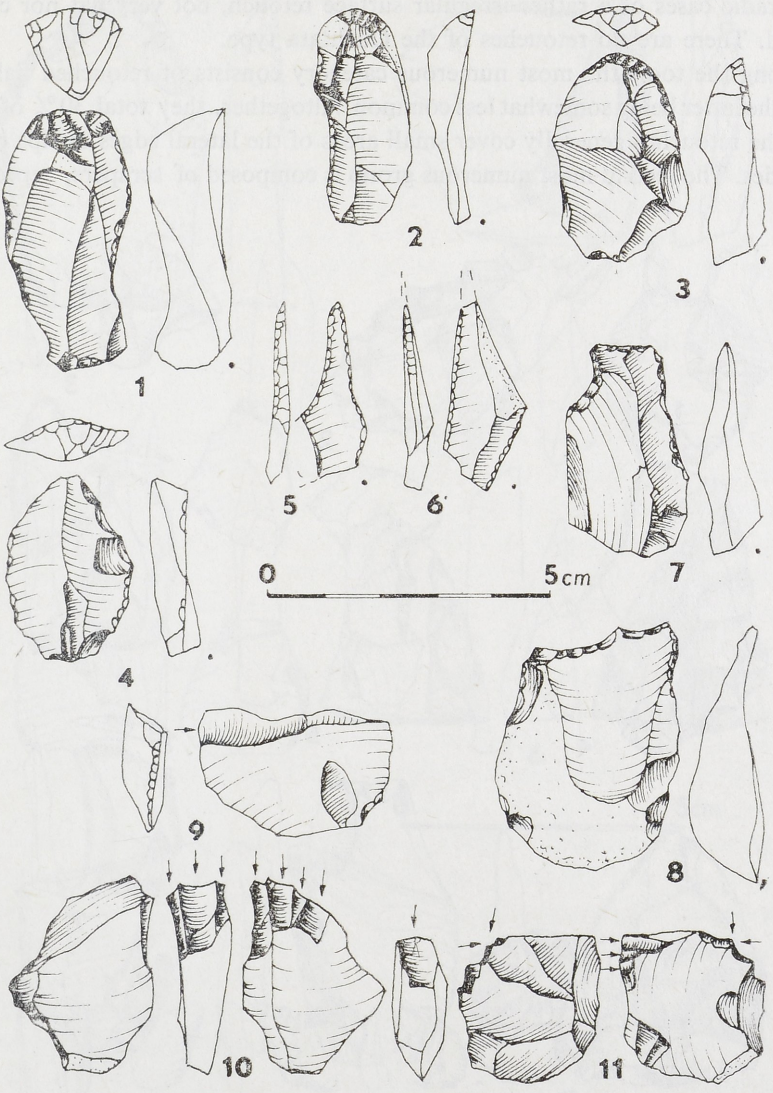

FIG. 1. El-Tarif, layer 2. Tarifian implements
1 - 4: End-scrapers; *5 - 8*: Perforators; *9 - 11*: Burins

trariness, which characterizes the initial preparation of the cores. Apart from a small number of blade specimens these are often completely devoid of preparation. The frequently random choice of blanks for producing the tools is also a characteristic feature. Traces of Levallois technique as well as microlithic bladelet technique are completely absent. In forming the tools, the predominant type of retouch used was marginal, semi-steep and steep; flat retouches are more rarely encountered and there

are sporadic cases of a rather irregular surface retouch, not very flat nor carefully executed. There are no retouches of the Ouchtata type.

Among the tools the most numerous category consists of retouched flakes and blades, the latter being somewhat less common. Altogether, they total 30% of all the tools. The retouches generally cover small areas of the lateral edges or tips of flakes and blades. The second most numerous group is composed of scrapers, representing

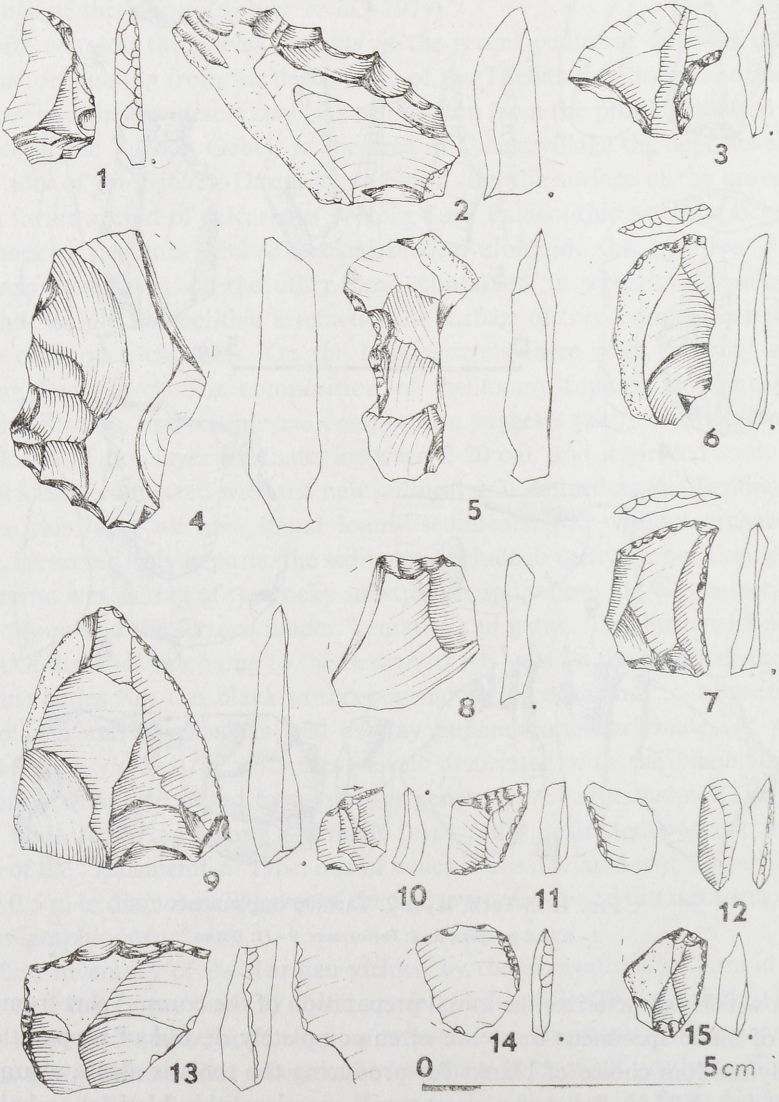

FIG. 2. El-Tarif, layer 2. Tarifian implements

1: Backed piece; *2*: Denticulated implement; *3 - 5*: Notched pieces; *6 - 8*: Retouched truncations; *9, 13 - 15*: Retouched flakes; *10, 11*: Microliths; *12*: Microburin

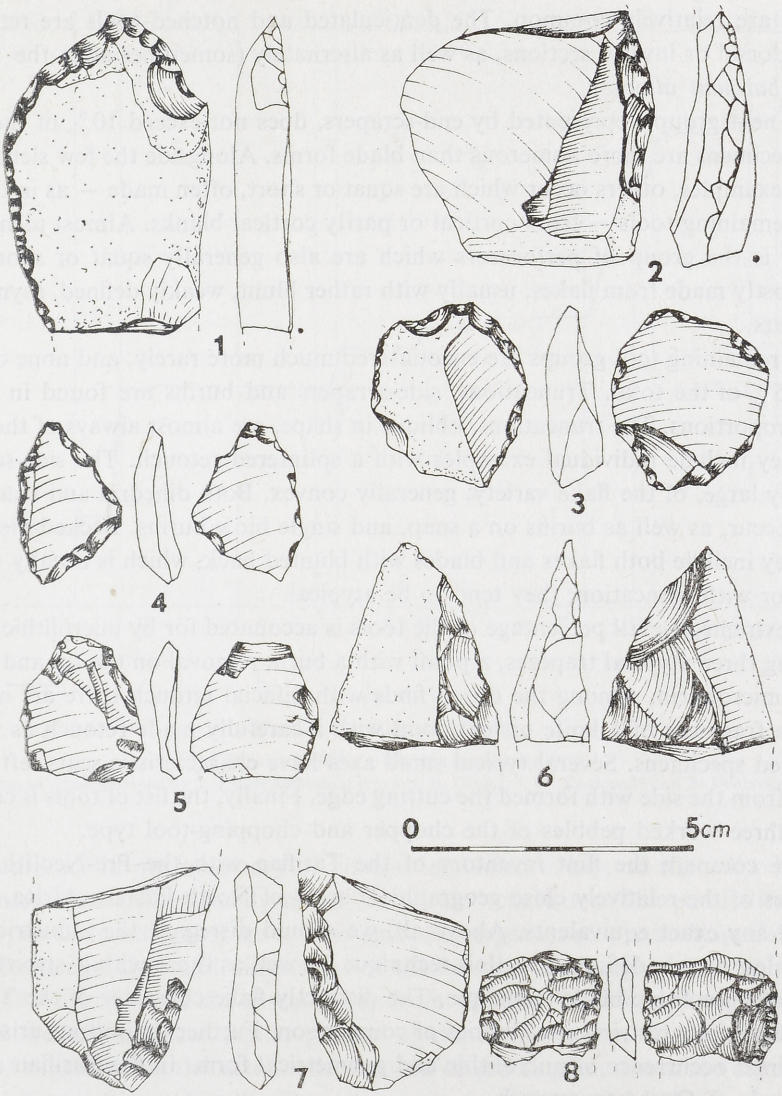

FIG. 3. El-Tarif, layer 2. Tarifian implements
1 - 2: Side-scrapers; *3 - 5*: Irregular scrapers; *6 - 8*: Bifacial tools

approximately 20% of the tools. Irregular, steep and semi-steep retouches on the dorsal and inverse sections generally cover considerable parts of their edges. Together with the retouched flakes, they are a particularly characteristic feature of the Tarifian tool kit.

A much smaller group is that containing notched and denticulated pieces, usually made from relatively large and robust flakes. Among the notched pieces Clactonian

notches are relatively common. The denticulated and notched tools are retouched on the dorsal or inverse sections, as well as alternately (sometimes after the fashion of *bec burinant alterne*).

The next group, represented by end-scrapers, does not exceed 10% of the tools; flake specimens are more numerous than blade forms. Alongside the few slender and regular examples, others occur which are squat or short, often made – as in the case of the remaining tools – from cortical or partly cortical blanks. Almost identical in number is the group of perforators which are also generally squat or short; they were mostly made from flakes, usually with rather blunt, weakly defined, asymmetrical points.

The remaining tool groups are encountered much more rarely, and none of these exceed 5% of the total. Truncations, side-scrapers and burins are found in almost equal proportions. The truncations, oblique in shape, are almost always of the blade type; they include individual examples with a splintered retouch. The side-scrapers are fairly large, of the flake variety, generally convex. Both dihedral and truncation burins occur, as well as burins on a snap, and single blow burins. Backed pieces are rare; they include both flakes and blades with blunted back, which is usually slightly arched or with truncation; they tend to be atypical.

An extremely small percentage of the tools is accounted for by microlithic forms, including three atypical trapezes, a point with a burin removal on the tip and a *Krukowski* microburin. Among the dozen finds with bifacial retouch there are axe-like forms, a fragment of a knife or leaf point with a carefully made retouch as well as unfinished specimens. Several typical small axes have characteristic scars left by removals from the side with formed the cutting edge. Finally, the list of tools is completed by three worked pebbles of the chopper and chopping-tool type.

If we compare the flint inventory of the Tarifian with the Pre-Neolithic flint industries of the relatively close geographical areas of North-Eastern Africa, we do not find any exact equivalents. Above all, we should disregard the industries with more or less clearly defined Levallois technique, as well as those with a strong component of microlithic blade technique. The distinctly flake character of the Tarifian also substantially restricts possibilities of comparison. Further limitations arise from the minimal occurrence of microlithic and geometrical forms in the Tarifian as well as the lack of Ouchtata retouch.

However, despite the differences, a comparison of the frequency and structure of the major tool classes may indicate a certain similarity between our inventory and the industries which constitute the complex called the Shamarkian, particularly its final ceramic phase known as the Post-Shamarkian. Analysis of the Tarifian tool kit suggests that it represents development of certain tendencies which become visible if we compare the Post-Shamarkian with the earlier chronological stages of this whole complex; namely a trend towards a decrease in the frequency of geometrical microliths and an increase in the incidence of flake technique for producing tools.

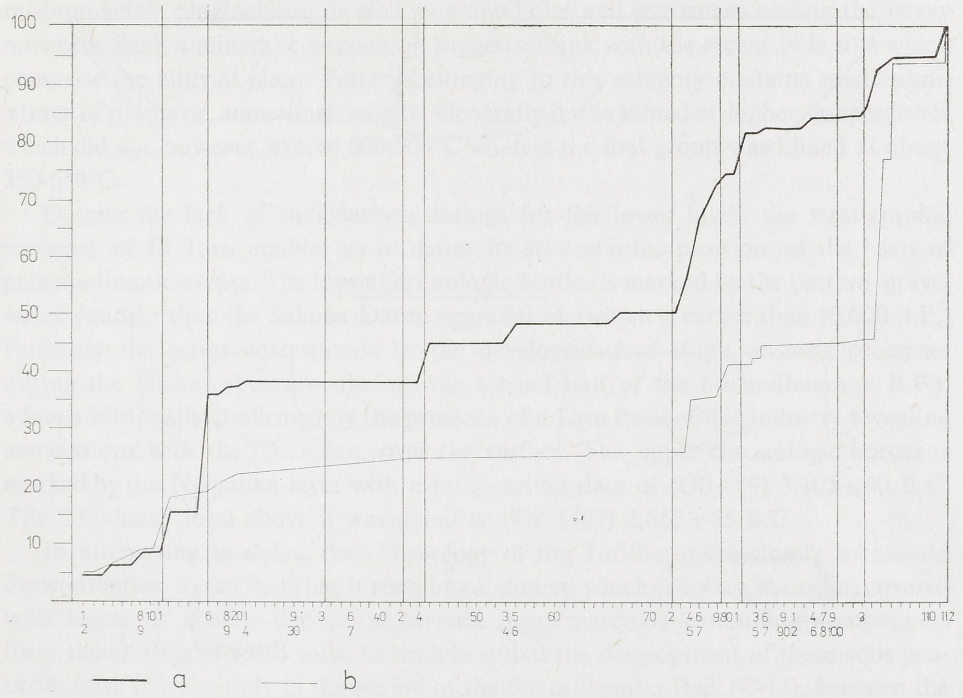

FIG. 4. Cumulative diagram

a: Dibeira West 50; *b*: Tarifian (excavation 1978)
According to typological list by J. Tixier; additional types cf. B. Ginter, J. K. Kozłowski and B. Drobniewicz, 1979

The occurrence in our inventory of bifacial implements may, on the other hand, be the consequence of its already more "Neolithic" character. The possibility should also not be excluded that some technological divergences may arise from the markedly different character and dimensions of the raw material employed. A comparison with the Post-Shamarkian assemblages from Dibeira West 4 and especially with DIW 51 reveals a rather similar pattern of cumulative curves on the graph, which perhaps suggests that the taxonomic position of the Tarifian is not too distant from the latter assemblage (Fig. 4). Thus, it is quite possible that the Tarifian represents the northern, late ceramic variant of the Shamarkian.

The pottery occuring in the Tarifian assemblage (Fig. 5) is not numerous and is preserved only in small fragments, which renders reconstruction of its forms extremely difficult. The following forms of vessels were encountered: a hemispherical bowl, a spherical vessel with a thick collar, a vessel with a spherical belly and cylindrical neck, a conical bowl, a large vessel with straight walls and, finally, a fragment of a flat plate. Apart from one fragment with an oblique printed pattern the ceramic finds bear no decoration.

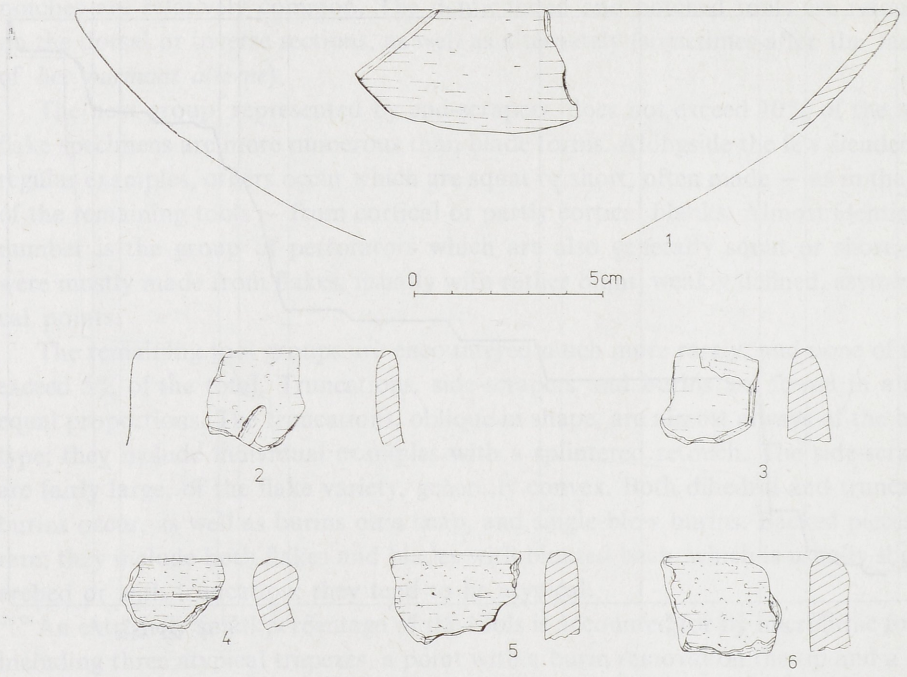

FIG. 5. El-Tarif, layer 2. Pottery from Tarifian layer

The macroscopic features of the ceramic mass allow us to distinguish the following type:

1. potsherds of medium thickness, straw, fibre and mineral (sand) tempered (56%),
2. fragments of thin-walled ceramics with a smooth surface, sand tempered (10%),
3. fragments of thin-walled, fibre tempered,
4. potsherds with walls of medium thickness, straw tempered with mineral (crushed stones) admixtures.

It thus follows that most of the ceramics correspond to the so-called chaff ware.

The petrographic – mineralogical and technological – examination of the pottery from Tarif allows us to distinguish two technological types: ceramics with a random texture, undoubtedly struck by hand, and ceramics with a parallel texture, probably formed on a moving base. The first type may, perhaps, be made of material from the Late Pleistocene silts of the Nile, *e.g.*, of the Sahaba-Darau formation. This is suggested by the presence, in the mineral composition, of elements originating from the weathering of granites and syenites, such as potash feldspars or, among the heavy minerals, zircon and rutile. The pottery of this group is tempered with quartz, organic admixtures and fragments of clay rocks.

The second group, consisting of ceramics with parallel texture, was made from material originating from basalts and diabases; this is indicated by the presence of

medium-acidic plagioclases, as well as amphiboles and pyroxenes among the heavy minerals. Such a mineral composition suggests a link with the recent Nile silts which comprise the alluvial plain. Pottery belonging to this category contains small admixtures of plants or, sometimes, calcite. Generally it was kilned at higher temperatures which did not, however, exceed 600-900°C whereas the first group was kilned at about 350-650°C.

Despite the lack of radiocarbon datings for the lower layer, the stratigraphic sequence of El Tarif enables us to define its stratigraphic position on the basis of palaeo-climatic events. The lower chronologic border is marked by the bottom gravel series younger than the Sahaba-Darau aggradation (which is earlier than 10,000 B.P.) Probably the series corresponds to the development of slope washing processes during the Dishna recession (before the second half of the 8th millennium B.P.). a fact additionally confirmed by the presence of a Late Palaeolithic industry revealing associations with the Qadanian, over the surface. The upper chronologic border is marked by the Naqadian level with a radiocarbon date of (Gd-689) 3,105±60 B.C. The "Archaic" level above it was dated to (Gd-1127) 2,665±55 B.C.

In attempting to define the chronology of the Tarifian more closely we should draw attention to the fact that it rests in a sediment which is eolian in origin, covered with layers of similar derivation formed from materials containing components from the erosion of fossil soils. Considering that the development of these soils probably took place mainly in the period of the 6th millenium B.C. (C-14), between the El Kab/Dibeira 51 micro-aggradation of 6,040-5,750 B.C. (Wendorf and Schild, 1976 : 310) and the micro-aggradation corresponding to the deposits in Cattfish Cave of 5,110 B.C., we should conclude that the series of sediments under discusion was formed in the following dry period when the processes of eolian erosion (for example, of the earlier soils on the slopes of the Gebel) were at their peak, namely in the first half of the 5th millennium B.C. (C-14). This would be the period corresponding to the above-mentioned micro-aggradation known from the Nubian Cattfish Cave and to the lake Protomoeris in the Fayum depression. If we take into account the occurrence of archaeological relics in the bottom part of the series – *i.e.*, in the part which was formed at the very beginning of the dry period – then it would seem likely that the age of the Tarifian coincides with the very beginning of the 5th millennium B.C. (C-14).

A comparison between the chronologies of the Tarifian and Naqadian is possible not only in the case of the sequence discussed here. The stratigraphy of the cultural development at Badari (Hemamieh) would seem to reflect a similar sequence, except that it is richer in developmental levels. The lower part of the Badari sequence, beneath the breccia, consists of sediments of the limestone debris type. These yielded flint products, mainly flake tools including a large number of scrapers and high end-scrapers as well as numerous denticulated and notched tools. Such artefacts correspond, in a general sense, to the Tarifian assemblage and are quite different from these appearing in the later layers. The oldest pottery from the levels in question was dated

by TL to 5,580±420 (for the level 6.5 feet below the breccia) and 5,495±405B. C. (for 1.33 feet below the breccia) (Whittle, 1975 : 119). These dates ought to correspond to the radiocarbon dates from the first half of the 5th millennium B.C., after taking calibration into account. At the same time, the debris series at the site must also have come into being in relatively dry conditions (Butzer, 1958 : 90). At El-Tarif we do not find any equivalent of the Badari breccia (where the pottery in this layer has a TL date of 4,690±350), but the TL dates for the Naqadian ceramics from El-Tarif (4,340 and 3,810) agree with the dates from Badari from the level at 5.5-5.0 feet, in the layer of slope deposits (4,330 and 4,450) and at 2.5 feet, in the anthropogenic layer (dated to 3,775±330). In this last case the pottery has been defined as already Naqadian (Gerzean). The increase in the humidity of the climate – evidence of which may be found in the second generation of rain channels at El-Tarif – has also equivalents at other Predynastic sites, *e.g.* in Armant where evidence of increased wadi activity is apparent and is connected with the increase in humidity towards the end of the Naqada period; this has already been suggested by Butzer (1958). Our own observations made in the Fayum depression, concerning the increased supply of water to the Neolithic lake in the middle of the 4th millennium B.C. (C-14) indicate that the growth of humidity began somewhat earlier than the radiocarbon date of 3,105±60 from El-Tarif (Ginter *et al.*, 1980).

In trying to trace the relationship between the flint inventory of the Tarifian and the flint industries of the Predynastic cultures we should bear in mind the difficulties arising from the hitherto unsatisfactory state of research as well as from the lack of typical settlement assemblages. The stratigraphic sequence of the sites belonging to both Badari and Naqada culture reveal a clearly defined differentiation of the inventories throughout the various levels; however, the way in which these were distinguished in the field and, in particular, the system of their publication leave much to be desired. This is clearly visible in relation to the basic multilayer sites, such as Badari (Hemamieh), Mostagedda or Armant. Therefore, any methodical attempt at comparing the flint materials of the Tarifian with the Naqadian inventory resting in the upper layer at the site of El-Tarif would seem to be more than justified.

The structure of the tool kit as well as the techniques used for obtaining blanks and the frequency of the basic raw materials reveal numerous, quite distinct differences between these two series of finds. In the Naqadian inventory – despite the continued predominance of grey Theban flint – imported materials are considerably more numerous, particularly the so-called "black" flint, much of which was probably brought here in the form of ready-made blades and, perhaps, even tools. In the Naqadian levels at El-Tarif we observe a marked growth in the proportion of blade technique, evident both in the greater frequency of blades themselves (twice as high – *I. lam. ess.* 24) and of blade cores, as well as in the considerably higher number of blade tools.

Other fundamental distinctions can be discerned in the structure of the tools. The proportions of side-scrapers and scrapers, as well as of retouched flakes and

notched-denticulated tools are now the reverse. The Naqadian assemblage contains considerably more burins. The most fundamental differences concern the proportion of backed pieces, relatively numerous in the younger inventory where they are represented by several dozen rectangular sickle inserts made from regular, high-quality blades. The bifacially retouched tools also show certain basic differences, despite their similar frequency in both cases in relation to the total amount of retouched tools. Whereas in the Tarifian mainly axes and axe-like tools occur, in the case of the Naqadian it is sickles and fragments thereof which prevail, formed by a highly developed, regular, flat retouch covering the whole side, known only from a single Tarifian fragment. The divergences among the backed pieces and bifacial tools, both in form and technology, were undoubtedly connected with their function as sickle implements in Naqada culture. Thus, in comparing the two inventories we may exclude the hypothesis which argues that they are genetically linked.

On the other hand, certain elements encountered in the Tarifian may also be found in the assemblages of Badari culture. However, this concerns exclusively the lower levels in the stratigraphic sequences of these sites as, for example, the layers between 6.5 to 5.0 feet below the breccia at Badari. In fact, at present the question of isolating and classifying the flint industries of Badari culture still raises so many doubts that any attempts at comparing them with other units cannot be properly justified.

The pottery from the Naqadian levels at El-Tarif consists of 4 basic groups:
1. fibre tempered, so-called chaff ware (over 87%),
2. so-called red polished (10%),
3. so-called black topped (under 2%),
4. so-called "Perlen und Schuppendekor" (under 1%).

The groups differ among themselves technologically and also from the mineralogic-petrographical point of view. Although the Naqadian pottery contains examples with both random and parallel texture, neither of these groups entirely correspond to the finds from the Tarifian level. Additional significant differences occur in the mineral composition; only in the case of the ceramics of the "chaff ware" type we presume that it was made – like the technologically more advanced examples of the Tarifian pottery – from the recent sediments of the alluvial plain of the Nile. Even the comparatively primitive fibre and grain tempered ceramics with so-called "Perlen- und Schuppendekor" from the Naqadian level differ in their paste from the Tarifian pottery, including those finds of the latter which also have plant admixtures. We are concentrating here only on a comparison of the technology and paste since the poor state of preservation of the Tarifian sherds do not allow us to form conclusions as to the original shape of the vessel forms.

As already mentioned, the Tarifian level at El-Tarif represents a settlement structure similar to the Palaeolithic camps. We arrived at this conclusion partly in view of the lack of any distinct traces confirming the existence here of an economy based on agriculture or animal breeding; there are also almost no signs of polishing

Table 1

The cultural development in Upper Egygt and Lower Nubia in the Terminal Palaeolithic-Neolithic/Predynastic times

Climatic sequence		Nubia	Upper Egypt		El - Tarif
Nile	Fayum				
	Dynastic Lake Recession		Naqada II 3070±90		Archaic /Layer 7/ C14- 2665±55
Dibeira-West Sub-aggradation	Neolithic Lake	3460±150 Post-Shamarkian 3650±20 3830±150	Naqada I 3627±300 3669±280 3794±300		Naqadian /Layer 5/ C14- 3105±60 TL - 3810 and 4340
Recession	Recession			3775±330 /2.5 feet/ 4330 } 5.5-5.0 feet 4450 }	
Cattfish Cave Sub-aggradation	Proto-Moeris	Cattfish Cave /5110±120/		4690±450 /breccia/	„Tarifian" /Layer 2/
Recession	Recession	Shamarkian /5750±120/		5495±405 /1.33 below/ 5580±420 /6.5 feet below breccia/	
El-Kab Aggradation	Pre-Moeris		/5980±160/ El Kabian /6400±160/		
Recession	Recession				
Arkin Aggradation	Palaeo-Moeris	Arkinian /7410±160/			

Badari /Hammamieh/ sequence TL - Dates

on the stone artefacts. By contrast, the Naqadian levels yielded traces of stone structures, probably dwellings, which as yet have no analogies in the Nile Valley (Ginter *et al.*, 1979). Moreover, numerous macro-remains of plants were found, grain imprints are visible on some potsherds and, finally, the animal bones – *e.g. Capridae* – unearthed. Specialized sickle implements are extremely common. All this points to a highly developed agricultural and cattle-raising economy of the type encountered widely in the Middle East.

The observations made so far lead to the following conclusions:

1. The Tarifian is the ceramic stage of the local Late Palaeolithic dated from the beginning of the 5th millennium B.P. (C-14) in whose flint inventory certain Neolithic features – particularly in the form of bifacial tools (axe-like and, perhaps, leaf-point) – are already visible.
2. The flint inventory of the Tarifian reveals, however, a lack of fundamental links with the later industries of the Predynastic cultures, particularly of the Naqadian.
3. The same applies to the pottery which does not possess any direct technological links with Naqadian ceramics. The basic sources of their raw materials were also probably quite different. It should, however, be stressed that the Tarifian also yielded a more developed group of ceramics, formed on a moving base. Thus the Tarifian pottery must have its sources in other, older traditions but the scarcity of materials makes it impossible to identify them.
4. Whereas the Tarifian corresponds economically to the hunter-gatherer stage of the Late Palaeolithic, the younger layers at our site represent a typical Neolithic food-producing economy, probably adopted from the Middle East. This direction of cultural affinity, already suggested by Thomas (1967), is also indicated by the flint inventory from the Naqadian levels at El-Tarif where elements (*e.g.* sickle inserts) derived from the Early Neolithic of the Middle East occur.

All these observations show that the societies of the Late Palaeolithic were evolving in the Nile Valley over a long period: if we also include their ceramic phase, this development would last at least through the 5th millennium B.C. (Table 1) Their technological traditions in both flint production and ceramics did not, however, play significant role in forming the culture of the Neolithic peoples in Upper Egypt from the 4th millennium B.C. onwards.

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