ON THE PRE-OLDOWAN DEVELOPMENT STAGE OF THE SOCIETY

TO THE MEMORY OF GLYNN ISAAC — OUTSTANDING INVESTIGATOR IN AFRICAN PREHISTORY

ABSTRACT — The Oldowan stage of the earliest Palaeolithic defined on the basis of artifacts found in East Africa some time ago is regarded as the earliest, initial stage of the human society. Oldowan is characterized by a large number of choppers, without cleavers and hand-axes, and with few, usually atypical flakes tools.

A detailed analysis of the earliest Palaeolithic finds from East Africa suggests that the Oldowan stage is not the initial stage of the development of the human society; the finds typical of this period must have been preceded, and in fact had been preceded, by earlier assemblages, with quite different composition of the industries. Here belong the localities in Shungura, Omo and Gona in Ethiopia whose age is estimated at more than two million years. The industries of these localities are in fact artifacts processed with extraordinarily primitive technique of primary working (through the technology of breaking the initial raw material). The products of this technology are angular fragments and splinters, rarely also real flakes. These artifacts are of relatively small dimensions (up to 5 cm). Choppers and other tools made of flakes, typical of the Oldowan proper, are completely missing. In this connection we regard it as correct to define the earliest period of the Palaeolithic as pre-Oldowan, and it could be called also Shunguran stage according to Shungura, the most typical site belonging to this epoch. It cannot be excluded that the pre-Oldowan industry was made by a being close to Hominid hominid.

The assemblages of the pre-Oldowan (Shunguran) stage evidently forms the genetic basis for the further development of the Oldowan microlithic industries (Koobi Fora, Vaalense), and of the later Achelulian and Mousterian in Europe.

KEY WORDS: Pre-oldowan — East Africa — Stone tool technology.

The Acheulean stage of the Early Palaeolithic determined by G. de Mortillet in the mid-nineteenth century was for a long period considered the earliest and initial stage of the history of mankind. These views survived even when Chelles, the eponymous site had lost its stratigraphic importance following the discovery of a new stratotype — Abbeville, with tools identical to those of the Chelles, but embedded in clearer stratigraphic conditions. First they were defined as pre-Chellean tools, but later the whole thing was revaluated and the new term was introduced. In 1932 H. Breuil put forward a suggestion to rename the Chellean stage Abbevillian, and since then the two terms have been synonymous for the initial period of the formation of the human society.

If we look back at the above development, we should realize that the forecasts of the pre-Chellean stage were logical. It was impossible not to see the gigantic leap in the physical development of the Pithoanthropus — the oldest human being known at that epoch — from the initial species of the fossil age.
from the viewpoint of anthropogenesis. Naturally the scholars expected the existence of a transitional form, of the so-called "missing-link," between man and the animal kingdom. The view of certain scholars that the missing-link could be bridged-over with a fossil sub-family of hominids, of Australopithecine, showing traces of the natures of tools, was refuted. On the other hand the development of stone tools in the Chellean stage -- stage than the Chellean hand-axe -- seemed to be one of the proofs of the transition from ape to man. In spite of all the primitiveness of the Chellean hand-axe, there is one undisputable thing. The manufacture of such a tool required a lot of experience and the corresponding level of abstract thinking, requirements that could not be reached at once in their final form. Exactly these facts prompted some scholars to assume the existence of an earlier and more primitive -- stage than the Chellean (Abbe- villian) (Mortillet, 1905, p. 74; Gortodtsov, 1923, pp 94--95).

Already P. P. Yefimenko wrote on these problems: "... on the basis of general consideration similar
gross flakes can be viewed as a most simple cutting tool, whose need was felt by the primitive man very soon. It is very probable that the separation of blades and flakes brought him to the idea to use the re-
mained pointed flint core as a hammerstone, more efficient than a stone fragment picked-up accidentally. The cutting tool, a simple and shapeless flake separated from a flint nodule, is a very old tool, perhaps it was the very first stone tool made by man intentionally" (Yefimenko, 1933, p. 109). These conclusions of P. P. Yefimenko were based on materials found in the sediments of the River Uomama, not far from Amruen, where the coarse flake lay under strata containing Chellean hand-axes. These finds are called pre-Chellean (Yefimenko, 1933, p. 109). These observations had necessarily led to the assumption of the existence of a long period, of a special epoch preceding the epoch of the origin of hand-axes (p. 109--110). However, prehistorians did not accept the idea. P. P. Yefimenko also concludes: "... a more thorough study of the condition of the deposition of the so-called pre-Chel- lean tools can form the necessary base for conclusions; although the flint flake played a much more important role in the initial phases of the Palaeolthic culture than it is often thought, the old scholars, researchers, and other scientists have not given to this stage the importance it deserved" (Yefimenko, 1953, p. 109).

The term "Oldowan" was introduced by L. Lea-
key in the fifties and is referring to the culture preced-
ing the Chellean (Leakey, 1951). All artifacts found at the Olduvai sites were identified and described and on the basis of those collections a classification of stone artifacts was realized. The classification took place mainly according to L. Leakey's typological scheme in which the author tried to determine the charac-
teristic features of the Oldowan stage (Leakey, 1956, p. 483). It has been pointed out that the most charac-
teristic stone tools of Oldowan are choppers and chipping-tools. The special literature focuses consid-
erable attention on the description of Oldowan artifacts and on statistics, but failed to define the exact characteristics of the Oldowan industry, and the features differentiating it from the assemblages of the following Palaeolithic stages, and this happened in spite of the fact that the scholars intuitively felt that the main difference between Oldowan and Acheulian is the presence of hand-axes and cleavers in the latter. This is an important criterion, but not the only one! Geographical and "archaeological universe" (G. P. Grigor'ev). On the very contrary, the very facts that led to the introduction of this term do not make it clear that the Oldowan production is not the oldest one and it does not represent the initial stage of production (Matyukhin, 1983, p. 145). Furthermore there are very good reasons not to limit ourselves to purely abstruse presumptions. The existing facts make it possible to ask once again in a more qualified way, whether there was a period in the de-
velopment of the society preceding the Oldowan. Thanks to the research by L. Leakey, G. Isaac, G. Chavassillon, K. Aranburp, G. Merrick and other scholars specializing in the study of the region of the Rudolf Lake (Turkana) and in the valley of the Omo River it has been possible to discover the earliest sediments containing numerous remains of hominids, of the fauna, stone tools, etc. coming from the period earlier than 1--3 million years (Table I), the earliest assemblages come from three main groups of sites:

1. The northern group of settlement, formation Shungura, the valley of the Omo River (Fiji 1, Fiji 2, Fiji 3), excavations by Merrick) they come from layer E. The first layer consists of gravel according to K/Ar to 204±0.1 and 193±0.1 mill. years (Merrick, Heimzelin, Hassoets, Howell, 1973, Merrick, 1978, H. Merrick, J. Merrick, 1970).
TABLE 1.  The Chronology of the oldest East African finds

<table>
<thead>
<tr>
<th>Layer</th>
<th>Site</th>
<th>Age Estimate</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0</td>
<td>Olduvai, upper</td>
<td>2.5–2.7 million years</td>
<td>Afar (Ethiopia)</td>
</tr>
<tr>
<td>1.2</td>
<td>Olduvai, middle</td>
<td>2.8–3.0 million years</td>
<td>Afar (Ethiopia)</td>
</tr>
<tr>
<td>1.4</td>
<td>&quot;Koobi Fora&quot;</td>
<td>2.7–3.0 million years</td>
<td>Afar (Ethiopia)</td>
</tr>
</tbody>
</table>

2. The southern group of the Shungura settlement formation, the River-Beni, includes many more localities – Omo 71 – layer F – more than 2 million years old, isolated artifacts, from the layers C, D (2.5–2.7 million years old), however, the collection from these sites is not too numerous or perhaps they were not found in situ (Chavaillon, 1976, Issak, 1976, p. 487).

We shall call the northern settlement group Shungura, and the southern – Omo.

3. Koobi Fora, the eastern part of Turkana (KBS, HGS, NMS, CPH). There are two possible variants of determining the age of Koobi Fora. The first date – 2.9 million years – was obtained with the help of the isotope method (A14C/A14N) Fitch, Miller (1977), and later it was proved also through the paleomagnetic method (Brock, Issak, 1974), and partially through the remains of fauna (Maglio, 1972). The second date – 1.6–1.8 million years – was obtained with the help of the new K A isotopic method (Issak, 1976), and its correctness is proved by the fossils (Issak, 1976, p. 128). In Brock’s recent publications we read that the sediments in eastern Turkana are not very suitable for paleomagnetic analysis. G. Issak refrains from categorical conclusions, however, he is inclined to support the earlier date (Issak et al., 1976, p. 82), but in his recent publications he seems to adhere to the later date – 1.8 million years (Issak, 1976, p. 93). Most experts are prone to support the later Koobi Fora date.

Recently a new focal point of the earliest human activities seems to have been discovered – namely in the valley of the river Awash in Ethiopia. A few years ago we learnt about the discovery of the hitherto earliest vestiges of human activities at the Gona site.

TABLE 2.  Technical-typological indices of the earliest East African assemblages

<table>
<thead>
<tr>
<th>Locality</th>
<th>N of sh</th>
<th>Choppers</th>
<th>Polished</th>
<th>Scrapers</th>
<th>Core-axe (core choppers)</th>
<th>Varietals</th>
<th>Used pebbles</th>
<th>Used flakes</th>
<th>Cores</th>
<th>Core-like fragments</th>
<th>flakes</th>
<th>Flakes fragments</th>
<th>Angular fragments</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBS</td>
<td>1392</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>10</td>
<td>1</td>
<td>74</td>
<td>26**</td>
<td>42**</td>
</tr>
<tr>
<td>HGS</td>
<td>118</td>
<td>14</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>0</td>
<td>23</td>
<td>1</td>
<td>14</td>
<td>1</td>
<td>23</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NMS</td>
<td>293</td>
<td>8</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>25</td>
<td>3</td>
<td>16</td>
<td>1</td>
<td>70</td>
<td>41</td>
<td></td>
</tr>
</tbody>
</table>

At a closer look we can see that the assemblages evidently belonging to the Oldowan stage differ from the Oldowanan elements and are missing completely or at least partially (Table 2).

The artifacts from Shungura belong fully to the category of angular fragments (96.8 %) and flakes (3.1 %). The max. dimension of the artifacts is 4 cm.

The production from Omo seems to be more developed, the share of flakes is larger (up to 40%), the proportion of angular fragments in core is 26–70% in the early stages, however, they still prevail, isolated cores occur (max. 2 %). In Omo 125 and Omo 57, there is a similarity in some of the cores with cutting edge. (The parameters of the finds – max. 5 cm).

The industries from KBS have some characteristic Oldowan elements: choppers, core tools, polishes, cores. Some of them are represented by only one or two specimens (Leaky, 1970, p. 207, Issak, 1976, p. 587, Fig. 2, N 4–6). Most of these artifacts have been made of volcanic rocks – of basaltic (basalt). They are somewhat bigger, but the collection as a whole does not exceed the limits of microlith industry. The macro and micro-parameters of the finds from KBS differ from those found in Olduvai and are closer to the parameters of the Omo and Shungura assemblages. The flakes are perfect, in some of them the sides are parallel. A blank as a rule is not found in the assemblage. It seems that the Oldowan artifacts appear here at the beginning stage.

Hypothesis No. 1: the finds from Koobi Fora, Omo, Shungura and Gona are not man-made products (artifacts), they are natural objects. In order to be able to agree or disagree with this hypothesis we have to explain first what is an "artifact".

The criteria for determining reliably a paleolithic assemblage have been worked out long ago. The main features of an artifact are:

1. the striking platform,
2. the bulb of percussion,
3. the volume of the flake, evidence traces of secondary processing of the tools, retouch and stiletto-shaped flakes.

In view of certain experts only cores, flakes, and tools with secondary processing belong to this group. But are these criteria really sufficient for reliably determining the products of human hands at all stages of human development? In other words, is it really necessary to draw dividing lines between artificial human products and natural objects strictly on the basis of traditional criteria and to regard all objects behind this line as natural objects? This dogmatic approach to the definition of artifacts is based exclusively on the morphological characters of the objects, regardless of the concrete conditions of their finding and its age, artificially separating them from the
category of artifacts, of products made by man on purpose and used in the production process at early stages of the development of the production.

The traditional methods of defining the artifacts have their limitations. In some Aschalian assemblages of Tannoura (Korelovo), and of Central Asia, the layers containing reliable finds yielded also a large number of flat and angular fragments of the initial raw material without any traces of artificial flaking. The remarkable thing is that with the development of the technique of primary flaking the number of these objects is gradually decreasing (nearly from 60 % in Layer 7 in Korelovo to 10 % in Layer 5 of the same locality and it disappears completely in the Marshan). It is symptomatic that during the recent research into the Karasu Culture in Tadzhikistan V. A. Rassow found several stone objects without any of the typical traces of flaking, in sediments with unambiguous stratigraphic conditions accompanied by fauna (Rassow 1962). The considerable distance from the sources of raw materials, the planigraphy and stratigraphy, localization of the finds, their direct connection with the fauna, all these factors indicate that the above objects are very old and primitive artificial products.

Similar artifacts (fragments, flat flakes without any traces of artificial flaking) were found also in the earliest East African assemblages. In order to differentiate the stone artifacts from natural objects we should introduce the following additional criteria:
- position of the finds in situ
- elimination of possible mechanical damaging, no traces of transport or polishing
- localization of the finds within a limited section
- distance of the products from the raw material deposits
- absence of pebbles, and rock fragments in the find-bearing layer
- presence of accompanying materials; remains of fauna, charcoal.

Of basic importance for the classification of artifacts are their morphological characters and also the conditions of their discovery. Anyhow, accurate and concrete historical approach is imperative. The notion of artifact is a historical category. The development of the technique of primary flaking of stones and of their secondary processing went through stages. Some objects at the later development stage regarded as waste arising from the processing of stone could have been, and in fact also were, primitive working tools.

To document the authentic character of the finds from KoolIFI Forn, Omo and Gona the following traditional criteria will fully suffice:
- occurrence — only together with fragments — with large numbers of flakes with the usual traces of artificial flaking
- occurrence of solitary cores (up to 2 %), of flakes with traces of their use (up to 7 %) in Omo and of specially adapted tools and cores (up to 5 %) in KoolIFI Forn. Besides these finds were accompanied with finds of split bones (KBS, Omo, Gona) and including a complete skeleton of a hippopotamus.

To document the artificial origin of the finds from Shungura traditional characters will not suffice. In these assemblages prevail angular stone fragments (up to 97 %), but in slight amount there are also flakes and their fragments. The authenticity of finds from the Fij 2 site is documented by:
- the position of finds in situ; there were two layers of finds with a gap of 15 cm, interpreted as horizons inhabited for a short period (H. Merrick, J. Merrick, 1976, p. 98); the stone artifacts do not show any traces of transport; damaging, polishing, erosion; they have fresh look and sharp margins — the finds were discovered in a thin layer of sandy clay in stratified position.
- concentration of artifacts within a limited section;
- the raw material from which the artifacts have been made is very rare at the locality, not only on the surface, but also in the layers below and above the finds. The authors hold that the raw material had been brought to the site from a distance of several kilometres, or was taken from the nearest brook (Merrick 1976, p. 48).
- the layer with finds did not contain any pebbles, concretions or fine gravel
- the collected material is of the same quality as the assemblage of stone artifacts coming from this layer.

All these facts document the authenticity of artifacts from site Fij 2. This means that hypothesis No. 1 is not acceptable for Fij 2 (Shungura), neither for the Omo, KoolIFI Forn and Gona sites it is acceptable. The objects found in these localities are real artifacts.

The artifacts from Fij 1 and Fij 5 in Shungura were discovered in secondary position in a layer of gravel, on the bottom of a dry brook. Some of these finds carry traces of polishing. They were found alongside with skeletal remains of big mammals. There were also polished relatively new fragments among them. The students doubt very much that there might be any links between these fragments and between the stone artifacts. The finds from these sites remind of the artifacts from Fij 2, but for the time being we shall be well advised not to attach them to the group of intentional artifacts.

Hypothesis No. 2: the special character of the earliest East African industry is among other things also the result of natural selection in these finds: the minor fragments and flakes have been moved from their primary position, that is why no big pieces, tools or cores were found during the excavations. This hypothesis is made incompatible by the following facts:
- the above evidence the integrity and intact character of the layer containing the finds in Fij 2 (Shungura). The same proofs exist also for a number of KoolIFI Forn sites (KBS, HAB, NMS), Omo 123, Omo 57 and Gona.
- heavy concentration of finds within a limited section.

FIGURE 2. Artifacts from the Omo 57 and Omo 123 localities (according to Chavassieu). 1 - 2. Quartz fragments (Omo 123, in situ); 3. Fractured quartz flakes (Omo 57, in situ); 4. Quartz flakes (Omo 57, in situ); 5. Quartz flakes (Omo 123, from the surface); 6. Quartz flakes (Omo 57, in situ); 7. Eclectic quartz flakes (Omo 57, in situ); 8. Retouched and used flakes from Jasper (Omo 57, in situ); 9. Polyhedral quartz core (Omo 123, in situ); 10. Flakeshaped quartz core (Omo 57, from the surface); 11. Polyhedral quartz core (Omo 57, from the surface).
— occurrence of accompanying material: of split bones, of a complete hippo skeleton (HAS), impression of a fig-leaf (KBS) — occurrence of artifacts of various dimensions of small fragments (up to 1 cm) on the one site, and of bigger artifacts (up to 5 cm in Omo, Gona and up to 10 cm in Koobi Fora). The latter were certainly not in use. However, to name a few other artifacts, the remnants of the layers included any probability of natural selection of the finds.

— the large quantities of collected material concerning the “production centres” or other specialized production of ceramics in the studied region, perhaps with the exception of the HAS settlement in Koobi Fora.

Hypothesis No. 4: the specific features of the assemblages can be explained by the character of the raw material.

Merrick who studied the Shungura assemblages reports in his own words: “The dominance of long-distance transport is missing, real cores, flake tools and remains of animals were found (Davis, Ranov, Dodson 1980). It seems that we have the necessary material for the definition of one more step of stone processing, more primitive than any of the known flaking method (radial, Levalloisian, parallel, "eitrar"); we can call it sharpening or breaking method.

As far as the explanation of the technical-typological features of the Shungura, Omo, Koobi Fora assemblages are concerned, we have to dismiss the "raw material" hypothesis as such. In connection we should add that the raw material influenced the dimensions of the products, but not the degree of their perfection. We shall certainly not exaggerate if we say that the shortage of raw materials in the studied area is more important for the initial raw material — of the pebbles in many aspects predeter-

minded the microlithic character of the Koobi Fora, Omo, Shungura assemblages. It seems that exactly here we can find the roots of the late stage of the microlithic industries of Achellean and Mousterian in Europe.

Hypothesis No. 5: one of the specific features of the Koobi Fora, Omo, Shungura and Gona assemblages is that they are very limited and these limited numbers need to lead us to more refined selection. We have sufficient amount of finds from each group of settlements in the Shungura, Omo and Koobi Fora regions (Table I). The finds from the KBS and HAS settlements in Koobi Fora and from Omo and Shungura, but they are not less numerous than some assemblages from the Olduvali age. In the CPH site in Koobi Fora we found 24 artifacts without stratiography and 10 in the layer. Omo 71 yielded a single chopper, isolated artifacts were found also in earlier Omo layers (in layers C and D whose dating is estimated to be between 2.5 and 3.0 million years). The Gona locality is represented by 18 artifacts found in soil, 50 were found on the surface. Of course we do not have certain indications before 4 million years ago, but we have to recognize that the technological differences between these assemblages and the Olduvali assemblages exceed the framework of the "KBS industry" and represent a certain characteristic Oberhundart features. These artifacts represent a completely different earlier industry.

In conclusion, the first, in context, we can say that the earlier stage in the development of the human society, namely the pre-Oldowan represented by the former foundation of the Oldowan (about 3.0 million years) can be easily characterized. The interesting thing is that Chauchoin who discovered the

Hypothesis No. 3: the special features of the assemblages from Koobi Fora, Omo, Gona and Shun-

gra can be explained by intentional human activi-

ties — by artistic selection. In other words, the characteristic features that can be regarded as workshops, central parts of settlements, results of the beginning division of labor at the Oldowan stage.

However, it is difficult to consider the above characteristics as "workshops", namely for the following reasons: Workshops appear as a rule at the sources of raw materials, and the studied region is very poor in raw materials. Students have repeatedly emphasized that the tools, were brought here from distant deposits or were transported from the nearest deposits (Isaak, 1976b, p. 561; Merrick, 1976). If we accept this view, we have to assume that the hominids brought the pebbles from distant deposits, processed them at certain places and brought them ready to use. This hypothesis lacks any plausibility. Besides that, there were always finished tools and large quantities of cores to be discarded and completely or not finished tools were found and very few cores appeared. Besides that no "workshops" and "no production centers" were found in the Olduvai Gorge. It is unlikely that they could have spread in an earlier period. Besides that in KBS, Omo and Gona the products were found along the remains of fauna, which is a feature not typical of the Oldowan industry.

It is quite possible that in the main settlements have not yet been discovered, but the surface finds do not support this view. They show that the material have been collected, but tools or cores appear very rarely. Besides that there are certain well perceptible character-
estistic differences in the forms and pattern of the region. The hominids settled the area along brooks and lakes, settling up their small campsites. The presence of the farms can be added to a certain extent — only for settlement HAS in Koobi Fora. In the year 1971 a complete skeleton was discovered in the group of small stone artifacts — most of them flakes and their fragments. The measurements 15–20 eq. cm. G. Isaak holds that these flakes are not related to the process of carving the cores of the game. In his view HAS is a "Florentine battry site" (Isaak et al., 1976, p. 540; Isaak et al. 1976). He compares it with a site from a later period, described by D. Clark (Clark, Haynes, 1976). He men-

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differences between the Shungura-Ohalo finds on the one side, and the Oldowan finds on the other, did not attach to them the classical Oldowan; he defined them as a special local industry — the "Shungura facies" (Chavaillon, 1976, p. 572).

On the basis of an analysis of the earliest East African assemblages we can make the following conclusions:

1. The Oldowan assemblages are not the earliest ones.

2. There is not a single Oldowan, it consists of Micro-Oldowan (Koobi Fora) and Classical Oldowan (Koobi Fora, Gona, and Gorge 1 and 2).

3. The Shungura and Omo localities with their techniques and typology are distinct and the character-istics differ from the Oldowan proper and represent an earlier and more primitive production — the pre-Oldowan industry.

On summarizing what we have said above we can define the most typical characteristics of the pre-Oldowan production as follows:

1. Predominance of shapeless splinters and fragments per one flake.

2. The technique of flaking is characterized by an utterly primitive method — i.e. by breaking or shattering or by acquiring flakes from rare, non-expres-sive polycrystalline conchoidal sources.

3. Micro lithism of the artifacts.

4. Utter absence of intentionally manufactured tools, namely of choppers.

5. The use of non-worked fragments, flat stone splinters and flaked-off pieces of stones as working tools.

These characters are typical of all pre-Oldowan localities, although to varying degree. The Shungura collections look more archaic, compared with the Omo assemblages. This is reflected by the prevailing share of splinters (97 per cent), utter lack of cores, traces of use can be seen on some of the fragments only. At Omo we can see an increasing share of flakes (up to 45 per cent), and the fact of this share of fragments is dropping, although they are still prevail-ing; occasionally appear isolated polyhedral, cubic, or even also dished or shaped cores (up to 2 per cent). At Omo 123 flakes and some cores were used for the working operations, instead of fragments. Some flakes show traces of use with regular notch (up to 7 per cent). They are interpreted as cutting and grinding tools and end scrapers (Chavaillon, 1976, p. 571). It seems that some cores youngest age groups.

It can be supposed that the pre-Oldowan period also consisted of two stages — of an early and of a late one, as represented by the Shungura and Omo locali-ties. This assumption, however, is not based on a chronology of finds; according to our hitherto knowl-edge the two-stage model is not yet the case. The other hand, if we take into account the uneven development of the society and the survival of archaic stone processing methods the core to the pre-Oldowan could have really existed two stages. The first stage being that of the random breaking of stones and the use of all available pieces. The second stage was that of the use of flakes from the cores and their use in various working operations, without special further processing (so-called "flake" method). Both the first and the second stage are characterized by the same lack of the completed tools. The second stage is directly connected with the first one, it had in fact developed from the first one, it is the result of the lower efficiency of stone processing. It is quite possible that in such a situation survived also the use of assemblages from the "fragment" method, now without the border of certain small collection of flaked-out tools remains of limes). The lists of tools comprise choppers, polyhedrons, discs, sometimes appear also proto-bit-lances. In order to distinguish between these assemblages and the real Achaeinian assemblages, and to derive their properties the finds from the Karri region of Ethiopia are called "Karaan industry" (Harris, Bishop, 1976; Isakai, Harris, Draper, 1976). However, from the technical–typological viewpoint the finds are rather heterogeneous and they can be divided into the following local groups:

1. assemblages without intentionally manufactured tools, the collections consist of flakes and fragments;

2. assemblages with relatively limited numbers of tools, represented exclusively by side scrapers made of fragments and flakes;

3. assemblages with somewhat larger number of tools, represented by side scrapers prevailing and with choppers represented.

Some of the finds from the Karri and Irer region are as follows:

1. The survival of the pre-Oldowan "flake" industry in the later Oldowan and Achehian stages without any evidence to the "flake" industry might resist any changes during such a long period. This industry may be considered Acheh-an with sufficiently perfect side scrapers and denticulated tools, practically without any cutting tools;

2. transition of Oldowan assemblages into unifacial Achehian (Achehian with choppers, side scrapers, with relatively rare proto-tools, without hand-axes and hauberks).

The finds in this region as a whole are characterized by a typical non-biface development of the Achehian industries. The variants of the draft inter-pretation of the assemblages do not exclude each other. They are evidently applicable to certain localities or groups of localities in Karri and Irer.

If we take into account the broad time bracket of the existence of the Karri assemblage, we cannot exclude with certainty the possibility that their heterogeneity reflects various chronological stages of the same industry.

The main links between the pre-Oldowan, Oldowan and Achehian assemblages of East Africa on the one hand and between the earliest Palaeolithic and Achehian on the other hand are rather distinct. The survival of the "flake" industry is well perceptible in the Achehian assemblages of Karas 1 and Korolevo (layers 7 and 8), where, as mentioned above, the technique of primary flaking is characterized by a large number of fragments and tools. The pre-Oldowan assemblages of Shungura and Omo evidently gave origin to Micro-Oldowan (Koobi Fora), and on its basis could developed later the European-Micro-Achehian (Vértesszölős, Arago and Blinks-hgewe) and from the western genesis area around the Micronesianian industry of the Continent. We can clearly follow the evolution even in the "flake" industry. Oldowan Acheh (Koobi Fora, Lake Sonjo, Kenya) (Lumley, 1975), although not in the microlithic variant. The survival of this tradition is evident in the 5th layer of Micoquian (Bislama), the collection of this layer consists of more than 400 artifacts, but is represented only by two inconclusive tools, the rest are flakes and fragments. The survival of certain technical traditions of East Afirca became the basis for forming the Clactonian in England and in northern France. Finds of classical Oldowan are limited to the southern part of Europe and are roughly 1 mill. yrs old (Vallonnet, Saudajy). We can presume that the unifacial Achehian developed later on their basis (i.e. Achehian with choppers without hand-axes). It is typical of the Balkans and of central Europe, Nie SkalVer (Greece), BeloVo, Predolit and Suchdol (Czechoslovakia), Trascarpatia in the USHR (Korolevo, Rokosovo) and others. All these facts document — some more, others less — the survival of certain technical traditions of the development of the earliest Palaeolithic industries during a very long period.

The comparison of the earliest assemblages from East Africa and of the evolution of these industries during a very long period opens new perspectives to the problem of the period, its stage and main directions of setting the Eurasian Continent. It is already evident that it was a protected and restricted, both horizontally and vertically, through the settling of Europe at places at various directions, through Pyrenees, Apennines and through small Asia.

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