NOTES ON THE STONE AGE CULTURES OF EAST AFRICA.

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There is now exhibited in the Coryndon Memorial Museum, Nairobi, a series of Stone Age tools illustrating all the stages of culture known to have existed in East Africa at varying pre-historic periods.

In this paper I propose to give a summary of what we know about these cultures, so that members of our Society who visit the Museum may be better able to appreciate the exhibit.

The length of time from the period when man first began to utilize stone as a material for making tools, to the time when he eventually gave it up in favour of metal, cannot be accurately estimated in terms of years, and therefore we have to find some other medium in which to express our time scale. Luckily for the Archaeologist the climate of the world has undergone intense changes during the period known as the Pleistocene; and, since the beginning of the Pleistocene coincides roughly with the earliest known traces of man, both in East Africa and elsewhere, we can use these climatic changes as divisions of time.

Whereas in Europe the Pleistocene climatic changes resulted in alternating advances and retreats of the Northern ice sheet, and in consequent changes both in the fauna and in the flora, in East Africa the world climatic changes were manifested most markedly by the increase or decrease of the rainfall.

The effect of the long periods of increased rainfall was that the level of the lakes rose enormously; while periods of greatly decreased precipitation resulted either in diminished lakes, or even in the complete drying up of lakes.

These changes in lake levels can be read in the geology of various parts of East Africa, and the climatic fluctuations thus worked out.

Similarly, geological study shows us that at certain periods during the Pleistocene violent earth movements and volcanic upheavals took place. The most marked and prolonged period of these earth movements gave us the Rift Valley, *in its present form*, as well as such extinct and nearly extinct volcanic masses as Suswa, Longonot, and Menengai. This does not mean, however, that there were not earth movements and volcanic upheavals both before and since this particular period. I can best indicate the sequence of events, and the sub-division of the Pleistocene period upon which we base the study of these events, by giving them in the form of a table. This table should be read from the bottom upwards.

TABLE OF EVENTS DURING THE PLEISTOCENE.

Gradual change to present-day conditions.		
Period of renewed wet conditions.		Nakuru wet phase.
Very dry period.	1/3	Second minor arid phase.
Period of renewed wet conditions.		Makalian wet phase.
Very dry period.		First minor arid phase.
Period of greatly increased rainfall.		Gamblian pluvial.
Period of violent earth movements and volcanic upheaval, decrease in rainfall.	2/3	Major inter-pluvial period.
Prolonged period with rainfall greater than to-day.		Kamasian Pluvial.

It should be noted that, so far as our evidence goes, the period of volcanic upheaval and earth movement divides the Pleistocene in such a way that approximately two-thirds of the whole time was before this period, and one-third after it. Thus the lower part of the Kamasian Pluvial may be regarded as lower Pleistocene, and the upper part of the Kamasian as middle Pleistocene, in the light of our present-day knowledge.

The Gamblian Pluvial represents the last third of the Pleistocene proper, while the Makalian and Nakuran wet phases may be taken as the climatic fluctuations which lead up to present-day conditions.

Throughout the Pleistocene period animals now extinct were living in Africa, but the percentage of extinct types decreases as we get nearer to the present day.

In the deposits belonging to the very early part of the Pleistocene, the fauna includes not only extinct species, but also extinct genera, the most notable of which was the very large Dinotherium, *Dinotherium giganteum*.

Even the middle Pleistocene had its full share of extinct genera and species, including the three-toed horse, Hipparion, the giant sheep, Pelorovis, which had a horn span of about four feet, and the straight-tusked elephant, *Elephas antiquus*. In fact even during the middle Pleistocene, as represented by the upper part of the Kamasian Pluvial period, about 50% of the species then living are now extinct.

In the last part of the Pleistocene, on the other hand, nearly all the species are the same as those which still inhabit East Africa. The most notable exception was the giant water buffalo of which a

magnificent skeleton and skull was excavated at Naivasha by Dr. Nilsson in 1927. This specimen had a horn span of over eight feet.

Let me turn now to the sequence of stone age cultures in East Africa, and point out the gradual development of skill which took place.

In the lowest parts of the deposits of Kamasian age the only tools we have found consist simply of round pebbles crudely chipped along one side so as to give a very rough " chopping " edge. These tools we term Pre-Chellean, since they were the forerunners of the true Chellean stage of culture.

During the course of many generations early man gradually developed his skill in chipping stone, and with his increased skill he began to turn pebbles into definite tools made of a regular pattern. This he did by chipping all along both edges of a pebble or block of stone at one end, leaving the other end in the rough. In this way he achieved a sharp pointed implement with a blunt butt. Gradually from this stage he developed the habit of trimming his block of stone or pebble all over, until eventually the type tool evolved was the ovate with a sharp cutting edge more or less all round.

I must emphasize at this point that the finding of a simply trimmed pebble in the pre-Chellean style does not necessarily mean that the deposit in which it is found belongs to the early Pleistocene. Any deposit must be dated by the most advanced tool type found in it. Even during the period when the Acheulean stage of culture flourished, pebble tools were being made *and* used for rough work, whilst frequently a partly-made tool of any period may *simulate* a pre-Chellean pebble tool.

On the other hand, in a true deposit of pre-Chellean times *no* tools other than these pebble tools, and the flakes struck off during the process of making them, occur.

In the exhibit case in the Museum an evolutionary series of tools from the pre-Chellean to the advanced Acheulean type is exhibited. This series was found in the successive Oldoway horizons and is proved both culturally and stratiographically. The advanced Acheulean stage of culture was reached towards the closing stages of the Kamasian pluvial, that is to say towards the middle third of the Pleistocene period.

In the deposits which belong to the very end of the Kamasian, after the true Acheulean stage of culture disappears, we find evidence of three distinct cultures whose relation to each other is as yet not quite clear. One of these, which we call Nanyukian, as it was first found by Mr. J. D. Solomon—a member of the 1928-29 Expedition—at Nanyuki, seems to be a simple continuation of the Acheulean tradition, but affected by certain other influences. Some of the tools most distinctly suggest a contact with the makers of the quite distinct Mousterian type of culture. The other two contemporary cultures

are an early Mousterian and an early Aurignacian. The Nanyukian culture is illustrated by a series of typical tools in the Museum exhibit case, but, as yet, I have not exhibited specimens of the recently discovered early forms of the Mousterian and Aurignacian cultures from the deposits belonging to the very end of the Kamasian Pluvial Period.

Until a few months ago these two latter cultures were only known from the deposits of the Gamblian Pluvial Period, representing the last third of the Pleistocene. These two very distinct cultures flourished and developed side by side in East Africa throughout the Gamblian Pluvial, and in the show case this parallel development is demonstrated by series of tools from the Gamblian deposits exposed in the Malewa Gorge at Naivasha.

The characteristics of the Aurignacian culture may be summarised as follows: The flakes from which the tools were to be made were obtained by striking a core from one single direction, with the result that they all show longitudinal flake scars, as do the cores. A wide range of tool types was made from these longitudinal flakes, the principal ones being knife blades with flattened backs, end-scrapers, burins, and little crescentic tools called lunates which were used as arrow barbs. In the earlier phases of the Aurignacian development all of these types were crudely made, whilst during the later phases of development increased skill resulted in innumerable varieties of each tool type, many of them executed with exquisite skill and beautiful symmetry.

The characters of the Mousterian culture which was developing contemporaneously may be summed up as follows: The flakes from which tools were to be made were obtained by what is called the tortoise-core technique. This technique was utterly different from that employed by the Aurignacians. A pebble or lump of suitable rock was taken and one side trimmed until it was more or less flat on one side by the removal of trimming flakes from all directions. Then one end of the pebble or block of stone was roughly trimmed at right angles to the flattened side. All of this trimming was merely in the form of preliminary work prior to the removal of the flake required for making a tool. A sharp blow was then struck on the roughly trimmed end so as to detach a wide flake from the prepared flattened side of the core. Frequently the flake thus obtained was used without any further secondary trimming; otherwise it would be subjected to a little trimming along one or both sides.

The main aim of the Mousterians seems to have been the production of more or less triangular pointed tools, and these so-called Mousterian points are the only really typical tool of their culture as far as East Africa is concerned. In Europe the Mousterians also made innumerable convex side-scrapers, but such tools have only been found very occasionally in Kenya up to date.

At the very end of the Gamblian Pluvial period, when the Aurignacian culture proper was reaching its final phase, the Mousterian culture developed into a culture which we term Kenya Stillbay. [1] this culture the type tools are beautifully trimmed points which suggest arrow or lance heads, and with these are associated certain tool types which were borrowed from the Aurignacians, such as end-scrapers and lunates.

It is during the close of the Gamblian Pluvial period, when the more developed phases of the Aurignacian culture flourished, that we first find any traces of the use of clay for " pottery." It is very doubtful if at this early stage the clay so used was intentionally fired. It would seem that clay was used to line the inside of baskets to make them watertight and that, by accident, some of this clay—shaped by smearing the inside of a basket to make a water vessel—got burnt in the fire. At any rate the result for us was the discovery of fragments of shaped baked clay bearing the impress of basketwork. It seems highly probable that it was through such accidental firing that the art of true pot-making was discovered.

When we come to the next division of our time scale, the Makalian wet-phase, we find that the true Aurignacian culture had been superseded by a derivate culture which we term Elmenteitan. There is, as yet, no trace of any culture derivate from the Mousterian having likewise persisted.

The Elmenteitan culture is characterised by many tool types common to the Aurignacian, but is distinguished from it by the high percentage of long symmetrical two-edged blades which show evidence of having been hafted, and which almost entirely took the place of the backed blades or blunt-backed, single-edged knives of the Aurignacians.

Furthermore, pottery by this time had been fully developed and the Elmenteitan culture is always associated with potsherds. Several very distinctive ornamental designs made by incisions and prickings are characteristic, but most of the coarser pottery was unornamented. Typical potsherds reconstructed pots are exhibited in the case.

Towards the close of the Makalian wet phase the Elmenteitan culture gives place to one which we term Kenya Wilton. This is what is commonly called " pigmy industry." This name does not imply that the makers of this culture were of small stature. In fact we know they were not. It implies rather that the bulk of the tools of this culture were of small size.

I can give no reason why the men of this period should have developed this culture consisting primarily of very small tools; all we know at present is that they did.

Pottery still flourished and was made in the Elmenteitan tradition.

(To be continued in the next number of the *Journal*.)