

## CHAPTER I

## DISCOVERIES IN KENYA PRIOR TO 1926

UP to the time when the East African Archaeological Expedition started excavations in Kenya in August 1926 no detailed archaeological investigations had been carried out in that colony, although a considerable number of important surface finds had been made, as well as a few discoveries of stone tools *in situ*. There had been no attempt whatever to work out the culture sequence, although several people—notably Professor J. W. Gregory, F.R.S., and Mr C. W. Hobley—had recognised the existence of several distinct phases. On the other hand, some of the statements made in connection with the discovery of tools in Kenya are astonishing, and the true significance of many of the discoveries had not been realised at all.

As far as is known, Professor J. W. Gregory was the first European to recognise a Stone Age tool in Kenya, and this was as far back as 1893, when he found a worked obsidian flake in the Ulu Mountains.<sup>1</sup> He at first suspected it of being a gun flint. He later found a number of other tools and flakes in various parts of East Africa. In his book, *The Rift Valleys and Geology of East Africa*, he devotes a whole chapter to the subject of “Pre-historic Man in British East Africa”, and this is quoted verbatim in Appendix E, by kind permission of the publishers and author.

Professor Gregory’s arguments in that chapter are often exceedingly puzzling. He seems to have been convinced that all the *obsidian* tools which he found were of Neolithic age. True, the late Sir John Evans had described a series submitted to him as being of that date, but his other evidence is less convincing. He says,<sup>2</sup> “*Conclusive evidence* [the italics are mine] of the Neolithic character of the *obsidian* implements is given by the discovery of two ground stone axes. The first, which has a weather-roughened surface, was found by Major C. Ross in 1913 at a depth of three feet at the Eldoma Ravine. It has been described by Mr Hobley, who regards it as the same age as the obsidian implements found at Njoro, *only twenty-five miles distant*”. [The italics are again mine.] But although he apparently regarded all the obsidian tools which he found as of Neolithic age, Professor Gregory and Mr Hobley did find one site with tools which they considered to be of

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Palaeolithic workmanship. This was at Ol Kejo Nyiro near Mt Olgasalic. Once again the statements are remarkable.

Although Professor Gregory regarded the implements which he found as indications of “the occupation of the Rift Valley north of Magadi by Palaeolithic Man”, he says, “The specimens collected were lying on a bank of white diatomaceous earth which seemed to have been dug by such implements. The earth was probably used as a paint, and these thin stone axes would make effective hand hoes in digging it. One specimen was in two pieces lying four feet apart, showing that it had been broken at the place. These flakes are certainly suggestive of Palaeolithic workmanship”.

I have not seen these tools, but three of them are figured by Professor Gregory<sup>3</sup> and they have been described to me as coups-de-poing; but it is hard to see how the marks of the diggings of Palaeolithic man in a soft exposed bank of diatomaceous earth—how else is one to interpret the words, “which seemed to have been dug by such implements”?—should not have been eroded beyond recognition.

But Professor Gregory was not the only man who had described stone tools in East Africa, prior to 1926.

Mr C. W. Hobley in various notes and articles in the *Journal of the East Africa and Uganda Natural History Society* drew attention to discoveries made by himself and by others, and he also published a note in *Man*.<sup>4</sup> Among the more important of the discoveries thus described by him were the finds made by a settler named Harrison in 1913.<sup>5</sup> Harrison apparently found a site rich in rolled examples of coups-de-poing, and took a series of these down to the Nairobi Museum. He seems to have been told that they were worth a good price, and so he refused to say where he had obtained them, though he left them temporarily at the Museum. Later on he was killed in the war, and no one knows of the site. A big collection of tools had been made by Mr W. Tunstall at Njoro, and Mr Hobley published some notes on tools from this and other sites in 1912.<sup>6</sup> Since then Mr Tunstall has given me a large series of tools from this same site, and these will be described at a later date.

Another keen East African collector is Captain Montague of Kyambu, and he too gave a series of tools to Mr Hobley to be described.

In 1925 Sir John Ramsden presented the Cambridge Museum of Archaeology and Ethnology with a very fine example of a polished Stone

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Age axe from Kipipiri, very similar indeed to that which Mr Hobley recorded from Eldama Ravine,<sup>7</sup> where it was found by Major Ross.

In *Man*, 1909,<sup>8</sup> Mr Seton Kerr published a note on some stone tools found by him in a railway cutting east of Nairobi. Another important find was that made by Mr Dowson at the Morendat River, Naivasha. (The tools were actually found in gravels exposed by the Malewa River near the old Government Farm at Naivasha.) These same gravels had yielded the lower jaw of a fossil equine described as *Equus hollisi*.<sup>9</sup>

Besides these published finds of stone implements, several people had discovered stone tools in various parts of East Africa but had not published them, and a few of the English museums possessed small collections of obsidian tools. There had also been found several stone bowls. These were roughly classed as Neolithic, but apparently no associated finds were made, with the exception of one or two stone rings resembling the so-called "digging-stones" so common in South Africa. Several notes on these were published by Mr Hobley<sup>10</sup> and by Mr Dobbs.<sup>11</sup>

In 1923 there appeared in the *East African Standard* of April 14 a letter from Major Macdonald of Nakuru, describing a find which he had made on his farm.<sup>12</sup> He had made a partial excavation of the site and had found a number of stone bowls, pestles and mortars, animal bones, etc., and he asked for information on the subject of his discovery. The editor of the *East African Standard* put a footnote to Major Macdonald's letter, suggesting that the site should be left as far as possible *in statu quo*, and about a month later, as soon as I saw the letter in Cambridge, I both wrote and cabled to Major Macdonald begging him to keep the site intact for detailed examination. This he very kindly did. It seemed fairly certain to me that this site would throw much light concerning the makers of those stone bowls previously found in Kenya; nor were we disappointed. (See Chapter ix.)

The published prehistoric discoveries in Kenya prior to 1926 may be summed up as follows.

The existence of a Palaeolithic phase was recognised by Professor Gregory and others, but none of the obsidian tools found in Kenya were considered to belong to that phase. All the obsidian tools, together with the polished stone axes and stone bowls which had been found, were classed together vaguely as Neolithic. No human remains had been found associated with any of these finds, and no attempt had been made to work

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out any sequence, or to sub-divide either the Palaeolithic or the Neolithic phases.

The position was better than this in Uganda and Tanganyika Territory. In both of these areas a certain amount of actual excavation work had been carried out by geologists. In Tanganyika Territory Professor Dr Hans Reck had discovered a fossil skeleton of a prehistoric man in the Pleistocene deposits at Oldoway,<sup>13</sup> but had found no stone tools with it. A note on this discovery was published in the *Illustrated London News*<sup>14</sup> and various comments on it appeared from time to time in publications on prehistory. Dr Reck and Dr Arning also published notes on one or two other interesting sites, notably some burial mounds in Ngorongoro crater which yielded stone bowls, beads and human skeletons.<sup>15</sup>

In 1924 I discovered a number of stone tools in the neighbourhood of Lindi and Tendaguru in south-east Tanganyika Territory, and a note on some of these was published in 1926.<sup>16</sup>

In Uganda, Mr E. J. Wayland, the Director of the Geological Survey, took a deep interest in the archaeology of his territory from the time of his appointment, and he has made an extensive collection of tools of various periods and cultures. He has published a number of notes on these from time to time, and has shown that Uganda is a rich field for archaeological investigation. Unfortunately, as Director of the Geological Survey, he has to do his archaeological work mainly in his spare time, so that he has not been able to carry out any very detailed excavations of cave sites. Prior to 1926 his published accounts indicated that he had evidence of three main culture groups which he called Kafuan, Sangoan and Magosian,<sup>17</sup> and he was already suggesting the idea of a glacial-pluvial correlation as a basis for dating the East African cultures.

## REFERENCES

1. *The Rift Valleys and Geology of East Africa*, by J. W. Gregory, p. 219.
2. *Ibid.* p. 220.
3. *Ibid.* facing p. 39.
4. *Man*, June 1925, no. 51.
5. *Journal of the East Africa and Uganda Natural History Society*, vol. vi, no. 11, p. 189.
6. *Ibid.* vol. III, no. 5, pp. 20 *et seq.*
7. *Ibid.* vol. III, no. 6, p. 60.
8. *Man*, 1909, p. 152.

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9. *The Rift Valleys and Geology of East Africa*, by J. W. Gregory, p. 221. Also *Proceedings of Zoological Society*, 1909, p. 586, a paper by Ridgeway.
10. *The Akamba*, by C. W. Hobley, p. 130.
11. *Journal of the East Africa and Uganda Natural History Society*, vol. iv, no. 8, pp. 145 *et seq.*
12. *East African Standard*, April 14, 1923.
13. "Erste Vorläufige Mitteilung über den Fund eines fossilen Menschenskelets aus Zentralafrika", by Hans Reck, in *Sitzungsberichte der Gesellschaft naturforschender Freunde*, Berlin, 1914.
14. *Illustrated London News*, April 1914.
15. "Prähistorische Grab- und Menschenfunde und ihre Beziehungen zur Pluvialzeit in Ostafrika", by Hans Reck, in *Mitteilungen aus den deutschen Schutzgebieten*, Band xxxiv, Heft 1, Berlin, 1926.
16. *British Museum, Stone Age Antiquities Guide*, 1926, p. 185.
17. *Proceedings of the Prehistoric Society of East Anglia*, vol. iv, part 1, paper by E. J. Wayland; and *Man*, November 1924, no. 124, note by E. J. Wayland.

## CHAPTER II

## CLIMATIC CHANGES

**I**N Kenya the story of prehistoric man is as intimately bound up with climatic changes as it is in European prehistory.

In Europe the Pleistocene was marked by a series of glacial and inter-glacial periods, and these climatic changes had a very marked influence upon the movements and distribution of the fauna and upon the types of vegetation; and since Stone Age man was at first essentially a hunter, dependent upon wild animals and plants for food, he too came under the direct influence of the climate, despite the fact that he could adapt himself to the cold of the glacial periods, thanks to the discovery of fire, and of the use of skins as clothing.

The sequence of glacial and inter-glacial changes was worked out in detail in the Alps by Penck and Brückner, and the results of their investigations have been applied (with certain modifications) to most of the other regions of Europe which were affected by the advances and retreats of the ice. The various advances of the ice sheet resulted in boulder clays and moraines, while the warm inter-glacial phases were marked by river gravels and by alluvial deposits. Fossils representing the fauna of the different periods are frequently found in the boulder clays, gravels and sands, as are also the stone weapons and implements of the Stone Age hunters of the various periods. Consequently it has been possible to work out the cultural sequence with considerable accuracy and to determine whether the makers of a given culture lived during a glacial or an inter-glacial phase, or whether they arrived during one climatic phase and continued on into the next, adapting themselves and their mode of life to the changing climatic conditions.

Unfortunately, there is still no absolute agreement between various archaeologists, or between archaeologists and geologists, as to the exact relation of the deposits in different parts of Europe to each other, and this is partly because each succeeding advance of the ice sheet tends to obliterate and mix up earlier deposits and so complicate the evidence. However, there now seems to be some measure of agreement that the biggest inter-glacial phase was that known as the Mindel-Riss inter-glacial, and there are many

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who tend to regard the Günz and Mindel glaciations of the Penckian scheme as the two maxima of a single major glaciation, separated from each other by a warm inter-glacial which did not necessarily involve a complete retreat of the ice from the northern parts of Europe. The Riss and Würm glaciations of the Penckian scheme are likewise regarded by many as the maxima of a single major event, but the warm period between these two was probably longer and more marked than that between the Günz and Mindel glacial phases. At the end of the Würm glaciation was a period of warmer climate known usually as the Achen retreat, but this was interrupted for a time by a renewed advance of the ice sheet which was responsible for what is known as the Bühl Stadium. The subsequent climatic fluctuations which led up to present-day conditions have also been worked out but need not concern us here.

It is often stated that the fauna of Europe during the glacial periods was essentially arctic in character, but that during the warm inter-glacial phases a tropical fauna with marked affinities with the African fauna of the present day (as well as of the African Pleistocene) came north into Europe, only to be driven back or exterminated with each return of the arctic conditions. In the broad sense this is essentially true, but it must be borne in mind that the southern parts of Europe did not have an ice cap even if they were subject to very cold winters, and certain species may well have successfully adapted themselves to the changed climatic conditions, and so persisted in the south of Europe, whence they would eventually spread northwards again when the ice cap and its influence were once more in retreat.

During the warm inter-glacials we find that the fauna of Europe included species of lion, hippopotamus, rhinoceros, elephant and hyena, etc., some of them closely related to the living African forms; while the fauna of the glacial periods included mammoth, woolly rhinoceros, reindeer, musk ox, cave bear, etc.; but even during a glacial period it is not impossible that some of the former persisted in the southern parts of Europe.

Very many reasons have been adduced to account for the glacial and inter-glacial changes, and they cannot be examined here, but whatever the cause or causes may have been, meteorologists are agreed that the climatic changes of the Northern Hemisphere must have been accompanied by changes of climate in the other parts of the world.

This fact is of the greatest importance to the study of African archaeo-

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logy, for Africa is yielding considerable evidence of great climatic fluctuations during the Pleistocene, and the deposits which correspond to the different climatic periods are frequently found to be rich in fossil bones and teeth of animals and in the stone tools of prehistoric man. Theoretically therefore, it should sooner or later be possible to correlate the climatic changes of Europe and Africa, and so to learn much concerning the comparative dating of the various Stone Ages in these two continents.

In 1893 Professor J. W. Gregory, the pioneer of East African geology, discovered much evidence of former pluvial periods in that area and he also recognised that these were connected with the greater extension of the ice sheets on Mount Kenya, and he suggested in his book *The Great Rift Valley*, in 1896, that there must be some correlation between these pluvial periods which had resulted in great extensions of the lakes and the successive glaciations of Mount Kenya. He wrote as follows:<sup>1</sup>

The second series of faults which made the main Rift Valley probably happened at the same time and increased its size and depth while others enlarged that of the Albert Nyanza. The climate of Africa must have been less arid than at present. The snow fields of Kenya were certainly larger and great glaciers flowed from these for several thousand feet down the flanks of the Mountain. The heavier rainfall helped the growth of the lakes which extended over places which are now sandy deserts.

But in his table on p. 235 he shows that he considered at that time (1896) that this extension of the glaciers and the rise of the lakes, and the second series of faults, were Pliocene events, so I conclude that he did not then connect them with the European Ice Age. At a later date, however, he did come to this conclusion. In May 1919 he wrote in the *Journal of the East Africa and Uganda Natural History Society* as follows:<sup>2</sup>

The conclusion that Mount Kenya was dead and desiccated before the beginning of the Pleistocene is based on the natural assumption that the former great size of the Kenyan glaciers was during the great Ice Age in Europe.

He also had realised that there had been considerable fluctuations in climate during that period, for in the same article he wrote:

The climatic variations of Kenya and the variations of the lakes were probably not due to a progressive desiccation, but to alternations of drier and wetter periods. Thus on the floor of the Endariki Valley is a deep young gorge now being cut out by floods after storms; but this gorge is being made by the re-excavation of an old gorge which has been filled by löess, a wind carried deposit, during some recent period drier than the present or during the formation of the original gorge.



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In 1926 Dr C. E. P. Brooks, the meteorologist, in his book *Climate through the Ages*, laid stress on the fact that, during the glacial advances in the northern parts of Europe, the climate of the land to the south must have been wetter. He says,<sup>3</sup> “Outside the limits of the ice sheets on the peripheral zone of ice winds, the weather was probably much as we know it to-day but more stormy”, and he continues:

This applies especially to the Mediterranean region which must have had a heavy rainfall distributed more or less evenly throughout the year instead of a moderate or scanty rainfall limited to the winter months as at present. . . . Wandering storms penetrated into the Sahara which was then one of the most genial regions on the globe, and this region, now a desert, appears to have been one of the main centres in which the human race rose to a dominant position in the world. The Equatorial regions in general had a greater rainfall than at present though with local exceptions. . . . There is abundant evidence that the lakes in Equatorial regions were probably much more extensive than at present, especially in Equatorial Africa, and it seems probable that this pluvial period coincided with the glacial period. At the same time the glaciers descended to a lower level than to-day.

But although in 1919 Professor Gregory had appreciated that the change of climate from the maximum extension of the lakes to the present-day conditions was not a continuous, gradual desiccation, but was rather a sequence of alternating wet and dry periods, and although Brooks was able to write in 1926 that there was abundant evidence that the lakes in Central Africa were once more extensive than to-day, and to suggest that this was during the period of the Ice Age, no really detailed study of the Pleistocene climatic changes of Kenya had been made. In Uganda however Mr E. J. Wayland had already done some detailed work which had led him to certain tentative conclusions which he summarised in a paper to the Prehistoric Society of East Anglia published in 1923<sup>4</sup> and in a note in *Man* in 1924.<sup>5</sup> He recorded stone tools in various high-level pluvial deposits and suggested the possibility of correlating the European glacial phases with pluvial periods in Uganda. When the East African Archaeological Expedition started work in Kenya in 1926 we concentrated our investigations mainly upon the lake basins of Nakuru, Elmenteita and Naivasha.

Here we found evidence which seemed to me to prove conclusively that during the Pleistocene there had been at least three pluvial periods, separated from each other by arid periods. In working out the geological evidence during the first season's work, I was very much helped, first by the Swedish

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geologist Dr Erik Nilsson, who had come out on an expedition to study the geology of the Rift Valley, and then also by Mr Wayland, the Director of the Geological Survey of Uganda, who kindly came down from Uganda to give us his advice, and he examined some of our sites and wrote me a short report, which was not however published. Although we obtained a considerable amount of evidence for alternating dry and wet periods, the details were not sufficiently clear to justify publication, and so when I returned for my second season's work in 1928–9 I arranged to have on the expedition a geologist, and a surveyor. Mr J. D. Solomon came out as the geologist of the Expedition in December 1928 and he did a great deal of very valuable work on the pluvial sequence, while my brother, Mr D. G. B. Leakey, undertook all the levelling which was necessary to ascertain the height of the various high-level lake terraces.

The geological evidence is now in course of preparation for publication by Solomon, and a summary of it is published as an Appendix to this book, so that I need not discuss the geological evidence here in any detail, but refer my readers to that Appendix. For convenience, however, I will here give an outline of the results of the geological investigation.

In 1926 we discovered water-laid deposits which were earlier than those three pluvial periods which we had then distinguished, but I did not take them into account, as I believed that they were part of a series of deposits laid down in what Professor Gregory named the Kamasian Lake or Kamasian Sea, and which he regarded as being part of his Nyasan series, which he had described as of Miocene date.<sup>6</sup> Solomon's work, however, has demonstrated that although these deposits do belong to the Kamasian series of lake deposits, which extend from the region of Lake Baringo to the Njorowa Gorge at Naivasha and probably farther, they are of Pleistocene date, and in fact it seems that part at any rate of Professor Gregory's Kamasian series should be brought into the first half of the Pleistocene and should not be regarded as the equivalent of the Karungu bone beds which are Miocene. Solomon further showed that the two pluvial periods, which in 1926 I had called "first" and "second", are really simply maxima of a single major pluvial period which had a small period of drier conditions in the middle. He has also shown that my old "third pluvial period" was not of sufficient size and duration to justify the term "pluvial period", and so we now designate it a post-pluvial wet phase, somewhat comparable to the re-advance of the ice