

THE PREHISTORY OF EAST AFRICA

by Sonia Cole

Introduction by Richard Carrington



Weidenfeld and Nicolson

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have made the dating of the paintings certain. In Africa, however, caves such as Bambata in Southern Rhodesia that have yielded comparable dating material are extremely rare. European artists, too, often decorated small objects (engraved bone or ivory tools, stones, or painted pebbles) that were sometimes incorporated in cave deposits and could be correlated by their styles with wall paintings; in Africa, such decorated objects are very scarce.

Although the absolute ages of African rock paintings are difficult to determine, the relative ages of different styles can be worked out by a study of the superposition of styles and colors. Perhaps because suitable rocks with smooth surfaces were not easily found, perhaps because certain sites were frequented over long periods and acquired magical or religious significance, generations of artists used the same canvas and, with complete lack of respect, painted over the masterpieces of their predecessors. If we find in a certain rock shelter that, say, stylized human figures in brown paint overlies well-painted, naturalistic claret-colored animals, which in turn are superimposed over crude outlines of animals done in an entirely different style in yellow paint, it is easy enough to say that the yellow animals are earliest, followed by the claret and lastly the brown figures. But we do not know whether the difference in time was a matter of a few months or several thousand years. When, however, we find similar styles and colors in the same order over a wide area in many scattered sites, it is assumed that the fashion of the time is reflected rather than the whim of individual artists, and it is fairly certain that a considerable length of time between the various styles is involved.

A. L. Armstrong's excavations at Bambata Cave in 1928 revealed for the first time in Africa an apparent connection between paintings and prehistoric cultures. Not only were coloring materials found in stratified deposits corresponding to the order of superposition of the paintings, but it seemed at that time that the earliest paintings were the work of the makers of the Bambata culture, as it was then called (now included in the Stillbay). In Europe, the earliest paintings that have survived are Aurignacian, almost certainly much older than any paintings known in Africa. The earliest paintings in eastern Africa have been attributed to the Nachikufans of Northern Rhodesia and Tanganyika; the first phase of their culture has been dated to 4300 B.C. by carbon-14, but the second and third phases are much later. In South Africa many paintings are associated with the Wilton culture, which survived

in places up till a few centuries ago, and some of the Tanganyika paintings are probably similarly connected with the Wilton. Only systematic excavation of the hundreds of rock shelters where paintings have been found will enable the art to be linked with cultures. Dr. and Mrs. Leakey made a start at this formidable task, and in 1956 R. Inskeep carried out a small excavation in one of the painted shelters, Kisese II, about 40 miles north of Kondoa.

While most of the Tanganyika shelters that have been tested show no great depth of deposit, at Kisese there is up to 14 feet of cultural material and bedrock was reached at a depth of 20 feet. At one side of the shelter is a large piece of rock in the process of breaking away from the wall, part of which has already done so. In the area once covered by the fallen rock are some red paintings, overlain by recent white ones. Two feet below the floor were found two slabs that were too heavy to lift back into place, but plaster casts left little doubt that at least one of the slabs fitted the break in the wall of the shelter. Clearly the slab must have fallen before the scar left on the rock face was painted and, from its position near the top of the sequence, it must have broken away during the latest part of the L.S.A. It is probably contemporary with ironworking, since slag and a broken tuyère were found in the top levels. The L.S.A. seems to start about a third of the way down the deposits, where there is a sudden decrease in larger scrapers and other tools and an increase of microliths.

Although pieces of ocher occurred throughout the deposit, more came from the level of the slab than anywhere else, supporting the conclusion that the paintings must be associated with this period. Inskeep concluded that the age of some at least of the Kondoa paintings should be measured in centuries rather than millennia, though whether this applies to all of them is not yet known.⁹⁷

The Nature and Purpose of Rock Paintings

Man was, of course, dependent on his environment for his painting materials; he used mainly mineral pigments mixed with animal fats or marrow. Iron oxide, heated to various temperatures, gives colors ranging from yellow through dark red and brown; the best material for black pigment is manganese, though charcoal was probably used as well. Many of the later paintings are done in white, obtainable from

kaolin or even bird droppings. Blues and greens rarely survive; it seems likely that they were used, but were probably made from vegetable dyes that have disappeared. The earliest observer of an old Bushman actually engaged in painting a rock reported that he sharpened a bird bone to form a flexible spatula to apply the paint; presumably feathers and fur were also used as brushes, while the fingertips are the most elementary "brushes" of all. Modern natives in Tanganyika have been seen to beat the end of a stick to make a brush for daubing for ritual purposes.

This brings up the question of the incentive to paint rocks at all. There are many reasons why a man would want to decorate the wall of his shelter—as a means of self-expression, to beautify his home, or merely to "doodle," to pass an idle hour. Dr. Julian Huxley has described how he watched a young gorilla in the zoo trace the outline of his shadow on the wall with his finger. An observer reported seeing rhesus monkeys near Bombay trace the outlines of their hands in the dust, using a twig held like a pencil. Recently, chimpanzee "art" has become celebrated and fetches high prices.

It is unnecessary to speculate over the significance of many of the paintings, but some, on the other hand, obviously have a deeper meaning. Two of the motives have been described as "wishful thinking" and "sympathetic magic."⁹⁸ In the first case you draw what you would like to have, whether it is a successful hunt, fat cattle, or a lovely girl. In the second case, the artist is convinced that an object can be made to suffer or act in a certain way in sympathy with the model. The custom of sticking pins into an effigy of an enemy in the hope that he will meet the same fate survives to the present day in many parts of the world. Similarly, it does not require much imagination to suppose that an artist who painted a buck stuck full of arrows hoped that he would succeed with a real animal in the same way.

Some paintings probably commemorate an outstanding event. Just as we like to record a wedding or a holiday with our cameras, so the primitive artist would paint the scene of a successful hunt, or an initiation ceremony, or perhaps a masked witch doctor praying for rain. The later Bushman paintings of South Africa often represent battles between themselves and tall, black figures armed with shields, who are obviously Bantu.

Almost invariably (except sometimes in the case of the recent "Late White" paintings) the modern inhabitants of Tanganyika are ignorant

of the artists responsible for the rock paintings, saying that they were done before they arrived in the country. Often painted rock shelters are treated with considerable awe and respect. The Wagogo, for example, say that the paintings near Bahi were done by the Wamia who preceded them; there is a tradition that these people sacrificed cattle at the shelters and painted the signs with pigment mixed with fat from the slaughtered animals. The Wagogo carry on this custom when they pray for rain, painting over the old signs, following the same lines, using fat from a sacrificed beast and a beaten stick as a brush. Although they have no idea what the signs mean, they fully believe in their magic properties. The present Wamia, who live in a different area, have elaborate funeral rites. When an important personage dies, the senior elder paints a portrait of the deceased along with his personal property such as cattle, gourds, pestles and mortars, ornaments, and so forth. It seems not unlikely that similar ceremonies took place in prehistoric times and that some of the weird symbols that we are unable to interpret may be conventional signs for household goods, weapons, and ornaments that accompanied a man to his grave.

The Art of Tanganyika

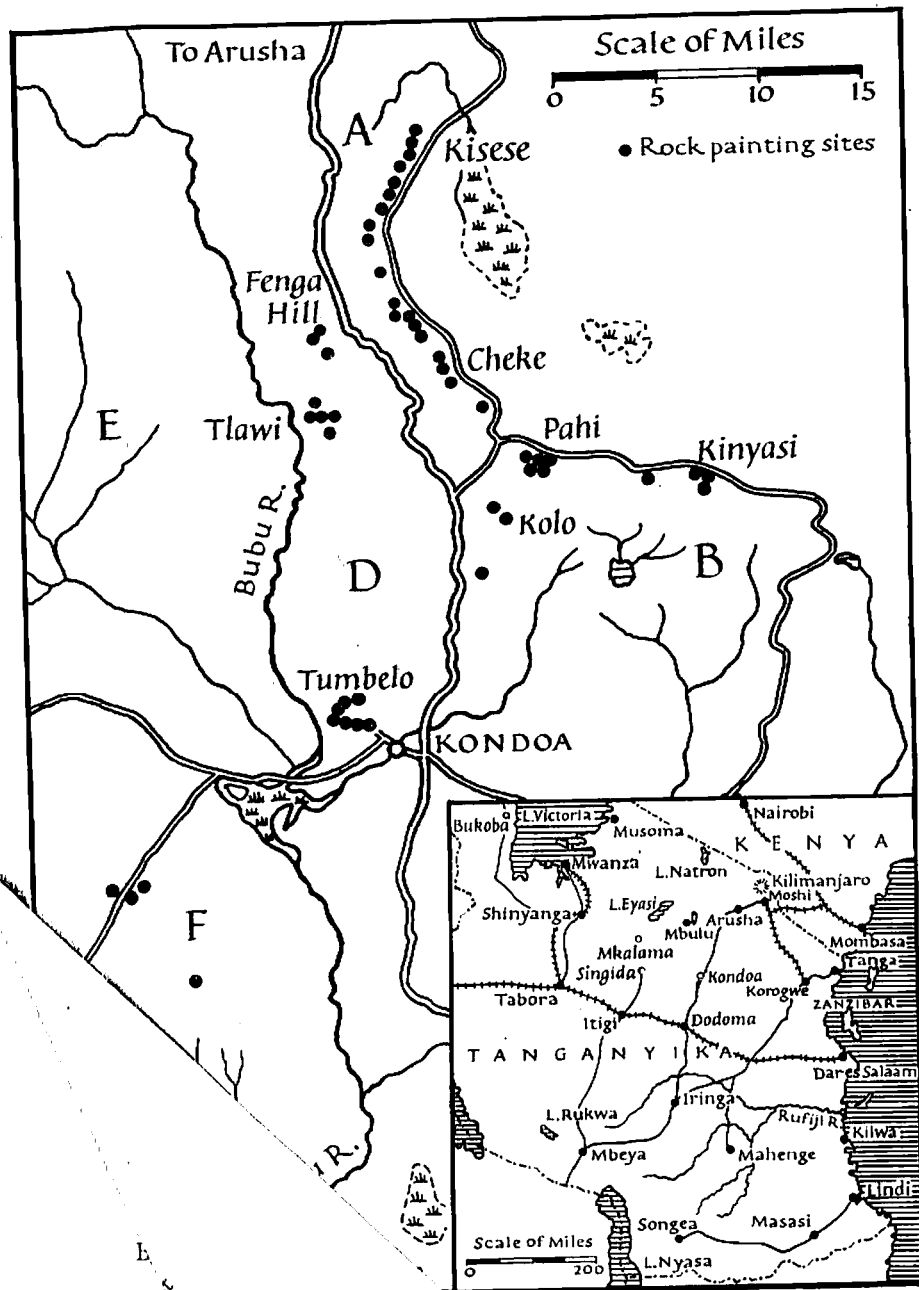
One of the first discoveries of rock paintings in Tanganyika was made by missionaries in 1908, near Bukoba, on the western shores of Lake Victoria, where stylized human figures in red paint were depicted on the walls of several shelters. No further reports of paintings came until 1923, when F. B. Bagshawe discovered paintings at Kolo, near Kondoa, and described those of the Kangeju Bushmen west of Lake Eyasi. In 1929, T. A. M. Nash discovered others near Kondoa, which has since proved to be the center of an incredible number of painted rock shelters (Map 12). A. T. Culwick described paintings near Dodoma in 1931; R. D. H. Arundell studied the Bukoba shelters in more detail; and Leakey discovered many more sites near Kondoa, to mention but a few.

Some of the paintings discovered by Bagshawe were at Kisana, on the eastern edge of the Iramba Plateau. One rock showed the heads and necks of two ostriches; a second had a faint representation of a giraffe and other animals, including antelopes and perhaps a dog. The best painting, on a third rock, was of an eland cow and calf. All were badly

preserved, as they are exposed to the sun and rain and to the destructive habits of the local children.

In dense bush country near Kondoa Irangi, Nash discovered a small hill composed of slabs of metamorphic rock, many of which were painted, but again the state of preservation was bad. Some of the figures were drawn in outline only, others were filled in, and superposition could be seen in many cases. Nash copied an amusing picture of an elephant followed by a stylized human figure who seems to be driving it along with a stick; the man is not actually holding the stick, which is depicted by itself between him and the elephant, and it may, in fact, represent a spear. A second painting shows two giraffes, one of which is well finished. Of a third design, Nash wrote as follows: "This fragment might represent anything, but it gave me the impression of a

Plate 15. Paintings at Cheke rock shelter.



ing sites in the Kondoa District, Tanganyika.
(in Tanganyika.)

rhinoceros round whose fore-limb a device comparable to the South American bolas had been flung. I admit this is highly fanciful.¹⁰⁰ From the illustration, it is impossible to make out the rhinoceros, or its leg, but the balls attached to strings certainly look like a bolas; this is very interesting indeed, as it might conceivably mean that this weapon had survived in use since the times of Olorgesailie.

Culwick described two sites 60 miles apart, one on the Iramba Plateau in Mkalama District, the other at Ilongero, 16 miles north-east of Singida Station.¹⁰⁰ Near Ilongero was a hill that the local natives were afraid to climb, as it was reputed to be the residence of the devil. With considerable reluctance, the chief accompanied Culwick up it, followed at a respectful distance by the other inhabitants. Culwick was acting in an official capacity and remarked that the chief probably thought that the government would be a match for the devil! Halfway up the hill was an overhanging rock 70 feet long by 9 feet wide, absolutely covered with paintings. The natives showed such astonishment at seeing these that Culwick was convinced that they did not know of their existence. The paintings were all in red, both line drawings and plain color and also combined (figures filled in, but with a darker outline). The line drawings were evidently the oldest, since they were overlain by those in color with dark outlines; the plain color paintings are the latest of all. Only fragments of the earliest line drawings remain. Most of the figures are animals, with a great many giraffes. There is a feline that may be a leopard and also a possible hyena jumping. Carnivores are rather rare in rock paintings (though magnificent lions appear on the Saharan engravings), presumably because they were not good to eat and therefore neither the "wishful-thinking" nor the "sympathetic-magic" aspects applied. By far the most commonly represented are antelopes of all kinds, with giraffe a good second. On this shelter was an elephant upside down, obviously drawn with considerable difficulty; it is supposed that this may be a convention for a dead animal (again perhaps "wishful thinking" or possibly commemorative). There is also an extraordinary picture of a tree with very long roots and also what appears to be a game trap with a block suspended from the top.

At Singida, 12 miles away, paintings were found on large boulders around a spring. On one of them the shape of an elephant was faintly discernible; the artist showed originality by making use of pink granite coming to the surface of the gray-covered rock; this he had

chipped away to form the rough outline of the beast, filling in the gaps with red pigment. Another curious feature of this site was piles of curiously shaped pieces of granite, obviously collected by man, though it was impossible to tell whether he shaped them or whether he amassed natural blocks of particular shapes and colors for some obscure purpose. At Ilongero similar piles were found, sorted into gray slabs, red slabs, and a collection of pieces with sharp edges. It is difficult to speculate on the purpose of such collections, which may in fact be nothing more subtle than the equivalent of our children's hoards of seashells, picked up and sorted simply because they have pretty shapes or colors.

Several shelters at Bwanjai, in the Kiziba chieftainship, discovered by Arundell, are painted with conventional figures (probably human), mostly red, but some black or white. These are obviously fairly modern, and similar signs are painted today. In the Ilangiro chieftainship, 45 miles south of Bukoba, however, the designs are different and brighter in color. Superposition of claret on red is seen, and there are also paintings in yellow. The present inhabitants are unaware of the origin of these designs, which are therefore presumably at least a hundred years old or more.

The Kondoa-Irangi District is apparently the main art center of Tanganyika. In 1935, no less than 14 different styles had been distinguished, of which the last 3 are very recent. Several other styles had been noted, but there was no evidence of their position in the sequence. Since that time, five earlier styles have been discovered. The area was divided up into six parts, lettered from A to F (Map 12) and each site was numbered within those divisions—for example, A 1-18, B 1-19, and so forth. The best-known sites are Kisese and Cheke in A division, north of Kondoa township and east of the Cape-to-Cairo road (this sounds impressive, but the illusion is quickly dispelled when one actually motors along this particular section, especially in the rainy season).

In 1951, Dr. and Mrs. Leakey started to intensify their previous work on the Kondoa paintings. Seventy-four sites were known at that time, of which 17 had been found in the southwestern corner of A. Concentrating on this section, within the year 186 sites had been mapped in A, only 67 of which were sufficiently well preserved for study. Although some of the visible art is old, most of it is probably relatively recent; the oldest styles of all could not be seen when the Leakeys started work,

but they devised a means for bringing them out. In many cases the paintings are covered by a thin film of silica; it was found that by spraying with water this film becomes temporarily transparent, so that the paintings beneath it can be deciphered and traced before the water dries. If more paintings have been added on top of the silica film at a later date, the spraying has to be done very carefully so as not to damage them. In other cases, the paintings are obscured by thick deposits of the excreta of hyraxes or "rock rabbits"; this sticky black substance looks and feels like tar and is difficult to dislodge.

Most people would not think the country particularly pleasant to work in, though it has undoubted fascination. To reach the shelters, one has to struggle up steep slopes through dense and often very prickly bush, where at any moment a snake or a rhino may be disturbed. Exploration is a lengthy and exhausting business, for the paintings are often completely obscured by bush; they occur on walls of granite and metamorphic rocks, which sometimes overhang in the form of

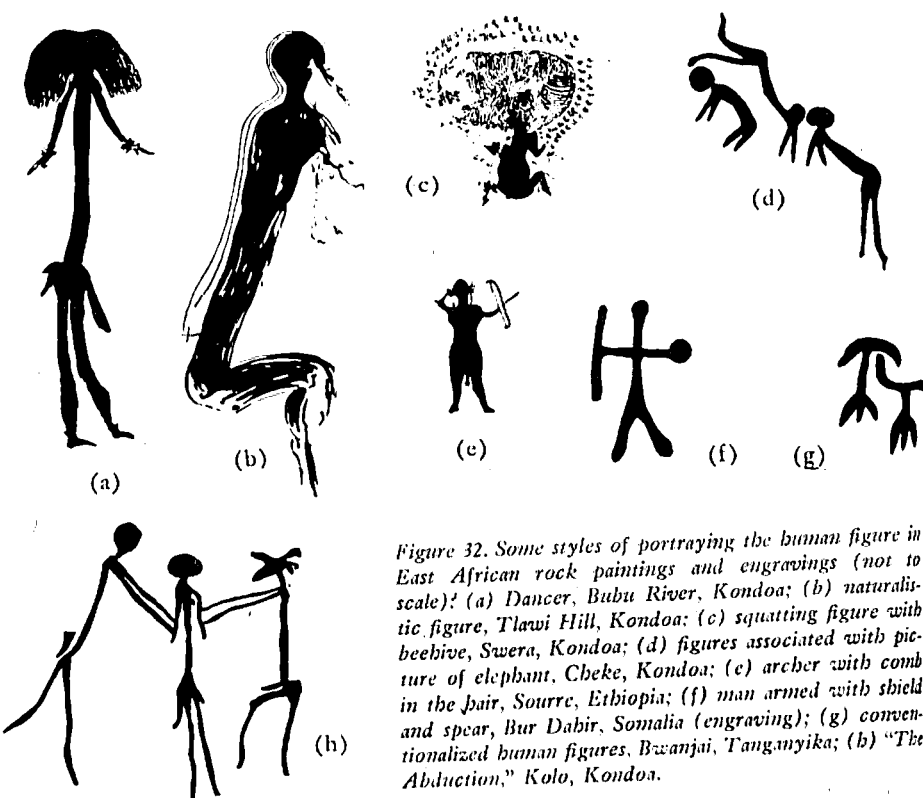


Figure 32. Some styles of portraying the human figure in East African rock paintings and engravings (not to scale): (a) Dancer, Bubu River, Kondoa; (b) naturalistic figure, Tlawi Hill, Kondoa; (c) squatting figure with beehive, Swera, Kondoa; (d) figures associated with picture of elephant, Cheke, Kondoa; (e) archer with comb in the hair, Sourre, Ethiopia; (f) man armed with shield and spear, Bur Dahir, Somalia (engraving); (g) conventionalized human figures, Bwanjai, Tanganyika; (h) "The Abduction," Kolo, Kondoa.

shelters. They are found both in high country and on the edge of the plains. Parts of the area have not yet been cleared of "fly," so that when leaving for "clean" areas, you and your car are sprayed with insecticide by workers of the Tsetse Control, who also whisk around the wheels with a butterfly net in an ineffective and rather absurd way.

Some of the paintings may be the work of the ancestors of Sandawe and Hadza (sometimes known as Tindiga) tribes who live in northern Tanganyika today and have affinities with the Hottentots and Bushmen. Paintings in the Hadza area include naturalistic animals in red, or in outline filled with stripes; some of the paintings also depict men with very long bows, which is a characteristic of the present Hadza (some of their bows measure more than six feet along the curve). The modern Hadza, however, deny any knowledge of the authorship of the paintings.

In some cases an industry was found in the shelters which was thought at first to be a Tanganyika variant of the Wilton culture, but was later recognized to be connected with the Nachikufan culture of Northern Rhodesia. In some of the Tanganyika shelters, coloring pencils, palettes, flexible bone spatulas, and knives have been recovered; these are said to be occasionally lower (that is, earlier) than the Nachikufan level.

The 19 superimposed styles (including the 5 oldest, which were revealed by spraying over the silica film that concealed them) fall into four or five major groups. All these styles are not continuous in any one area, and there is no sequence of the major groups, only of the subsidiary styles within the main divisions. Each main group has a distinct conception of the human figure, which may be naturalistic, or stylized in various ways (Fig. 32). True portraits are practically never made, presumably because of the dangers of "sympathetic magic" from an ill-wisher. Many of the animals, however, are so well painted that there can be little doubt that the artists were capable of producing good likenesses if they had wished to.

No true polychromes have been found as in South Africa and Europe, though a variety of colors were used for both outline and filled-in paintings. In some cases it was possible to compare the pigments found in the deposits with the actual paintings. Often it is a matter of great difficulty to decide the order of superposition, which can be determined only with a high-powered lens. In the most comprehensive publication on the subject, which does not include the new styles

recognized since 1951, Leakey differentiated two main groups: (A) in the Kisesse and Cheke area; (B) in the Kolo area.¹⁰¹ The styles noted in (A) are briefly as follows:

- (1) The earliest are animals in red; the whole figure is colored except for the face (which may have been painted in a pigment that has faded?); this is drawn in outline only.
- (2) Curious human figures in purple, and rather badly drawn animals, also in purple; there are also concentric rings of dots, apparently applied with the fingertips.
- (3) Outline drawings of animals, mostly ostriches and giraffes, in purplish-red.
- (4) A few indistinct outline figures in black, better drawn than in (3).
- (5) The art is at its best in this style; animals are naturalistic, with details shown in many cases, delicately outlined. The color is claret-red.
- (6) Rather badly drawn human and animal figures in yellow and orange.
- (7) Animals with the whole body colored in claret-red. The details are often not well shown.
- (8) Animals drawn in a thick red outline, less naturalistic than those of style (5). The commonest representations are of elephants, with the wrinkles on the trunks carefully shown, though less attention is paid to other details.
- (9) Animals outlined in brick-red color, stiff and conventionalized.
- (10) Peculiar human figures and badly drawn animals in solid orange color.

The last three groups are apparently very recent and need not concern us here.

The sequence in the second group at Mungomi wa Kolo (B1) is as follows:

- (1) Dark red filled-in human figures.
- (2) Animals drawn in outline, filled in with red color.
- (3) Thick, dark claret tectiforms (equivalent to style 2 in A, above).
- (4) Animals drawn in irregular outline (equivalent to style 3, above).
- (5) Thin outline drawings, well drawn except for the feet (equivalent to style 5, above).
- (6) Animals in thick outline, including elephants with well-defined ears (equivalent to style 8, above).
- (7) Human figures with filled-in heads and streaky bodies.
- (8) Crude animals in this outline and also rectangular euphorbia trees, colored in various shades of red (equivalent to style 9, above).
- (9) Rust-colored and orange outline drawings, somewhat stylized.

There are also crude recent white paintings that sometimes depict humped Zebu cattle. In addition, eight earlier styles have been recognized, but these do not fit into the scheme of superpositioning mentioned above.

- (a) Human figures with tails and headdresses.
- (b) Yellow-white thin outline figures that are underneath style 8.
- (c) Elephants with thin, narrow heads, without ears, and with streaky filling to the body; these appear over style 3.
- (d) Well-drawn outline animals with bodies filled in with bold brush marks in purple.
- (e) Roundheaded human figures probably equivalent to style A, 7; there are also some masked figures that may belong to this style.
- (f) Bright red animals and trees, overlying style 3.
- (g) Outline animals filled in with parallel lines, overlying style 7.
- (h) Animals in thick outline with the center of the body left blank.

No domestic articles or domestic animals are portrayed except in the very late styles; the majority of the animals are antelopes, buffalo, elephant, rhino, and ostrich, all of which were presumably used for food. Bows and arrows are represented, and at Fenga Hill and also at Cheke there is a scene that may portray an elephant caught in a trap. Clothing is sometimes represented by knee-length garments; belts with clubs or other weapons attached to them seem to have been worn, as well as ornaments on wrists, knees, and ankles, and elaborate head-dresses.

While most of the paintings show no signs of a planned composition, and consist of single figures often superimposed one on top of the other, occasionally an effective frieze or scene has been depicted. The Cheke elephant in the trap, for example, is surrounded by a group of human figures (Fig. 32d), one of which may have been tossed by the elephant, or perhaps the man is doing a handstand for joy at having caught him. A pair of rhinos (beautifully outlined in style 5) at Kisesse shows an acute observance of natural history, for the female is pursuing the male, which is the rhino's normal method of courtship! At Bubu, site D 5, a pregnant giraffe is prancing most actively. "The Dancers" (one of whom is shown in Fig. 32a), also from a rock near the Bubu River, though completely stylized, makes a delightful composition; anyone who has watched African dances cannot fail to be impressed by the action in the outstretched arms; one can readily imagine the head slightly thrust back, the eyes half closed, the elaborate headdress or

plaited hair shaken over the face. An amusing scene is painted at Kolo—"The Abduction" (h)—in which a central female figure is restrained by two males to the left, while to the right two masked figures attempt to drag her away. A squatting human figure at Tlawi seems to have thrust his head into a beehive and is being attacked by the angry swarm (c). One could go on almost indefinitely describing similar delightful scenes.

One of the most interesting of the painted rock shelters is Cheke, where a frieze of elands and giraffes may be seen (Plate 15). Some of the different styles distinguished at Cheke are illustrated in the frontispiece to Leakey's *Stone Age Africa*. The earlier styles, and animals in outline only, do not show up in photographs. The animals in Plate 15 as well as a human figure with what appears to be a comb in his hair, are in full color (claret-red) and represent style 7. The elephant surrounded by a ring of parallel lines with human figures above (Fig. 32[d]) are also in style 7.

At the Kisesse rock shelters there are a number of different kinds of animals, including giraffes and an ostrich in style 3 (with purplish outline), and the naturalistic male and female rhinos in style 5 (outlined in claret color). An impala (in style 5) has part of the body of an animal in style 3 beneath it, which is overlaid by a rhino's head in style 8. There is also an extraordinary animal with large body and small head; the body is filled in with patterns of irregular shapes. In addition, there are conventionalized human figures in purple (style 2), some with elaborate headdresses, either basketwork or plaits.

The following notes on some of the sites are taken from Mrs. Fosbrooke's account,¹⁰² as unfortunately I have not had the opportunity personally to visit any other than the Kisesse and Cheke sites.

TUMBELO DISTRICT (WEST OF KONDOA)

Three rocks close to a native smithy are painted, one covered with patterns, the others showing indistinct figures in red. Behind these rocks and over a hill are two small shelters, in one of which is a delicate picture of a grasshopper (or mantis) in red, less than 6 inches long. In the other shelter is a red figure with a basket-like headdress, resembling the squatting figure of Tlawi Hill (Swera) (Fig. 32c). Below the human figure is an antelope that has been shaded to give the impression that it is wearing a saddle cloth.

PAHI AND KINYASI (EAST OF KOLO)

At Pahi is a giraffe over two feet high outlined in orange, with mane and tail shown in detail; a large rhino is outlined in the same style. Under the giraffe is a creature with a thick neck and absurdly small head, outlined in red and filled in with yellowish-white, similar to one of the earliest styles at Cheke (of which only a few examples are known). Close to the main shelter are a number of rocks covered with "Late White" patterns. At Kinyasi, some seven miles away, is a fine naturalistic panel of graceful antelopes in various attitudes, some sitting down, some standing, others grazing. Here also is what appears to be a flat-roofed hut (or possibly a trap) and various other designs.

MUNGONI WA KOLO

Two "caves" or rock shelters on a wooded hillside near Kolo were first visited by Bagshawe in 1923; the Africans call them "the caves of spirits." Mrs. Fosbrooke says the upper cave (B1) is still used by local rainmakers, and the first time she visited it she saw the remains of a sacrifice. Three elongated human figures about 2 feet long wear very striking headdresses; "The Abduction" also comes from this site. A tectiform resembling a Celtic cross is one of the earliest paintings, and the same symbol is found on other rocks in the area.

TLAWI (SWERA) (WEST OF KOLO)

There are a great many interesting paintings in this area, including the "trapped elephants" of Fenga Hill; bushy objects in and around the "trap" have been interpreted as branches that originally concealed the pit, or perhaps they are men camouflaged in branches. On Tlawi Hill is a rock face with pictures of a buffalo or wildebeest head, a giraffe straining forward, and a small human figure. In another shelter are human figures sitting with crossed legs, and objects that look like pegged-out skins. Nearby is one of the rare pictures of a carnivore—a red lion outlined in black. Toward the Bubu River is "The Hunter," who stands with bow in hand, having shot an arrow into the chest of an antelope. In this area too is the scene of an antelope hunt, a large panel 7 feet, 6 inches, by 5 feet, in which more than a dozen animals are fleeing from faintly discernible human figures with bows.

A very fine rhino and a prancing giraffe are also to be seen here. Another shelter contains "The Dancers"; there are many other painted rocks in this area, including a sketch of a figure vigorously throwing a stick at someone. Another shelter is covered with very large animals, so large that they are difficult to trace. There are in fact so many paintings in this area that it is probable that many more await discovery.

A word on the method of copying devised by the Leakeys may be of interest. To get at the more inaccessible paintings, they erected light aluminium alloy scaffolding that is easily carried and is put together on the spot. The rock surface is often rough and far from easy to trace on, but they fixed large sheets of cellophane on to the wall with adhesive tape. Glass ink (made in many different colors) is used to trace on to the cellophane, since it sticks well and dries quickly. Later the tracing is transferred from the cellophane to paper and then taken back to the rock face for comparison with the original. The slow process of matching colors then begins; often it is necessary to mix natural raw ochers (in powder form) with powdered crayon colors to get the exact tones. The whole process, from the first tracing to the finished colored reproduction, is done on the spot, instead of guessing at the colors afterward with the aid of notes, as is done so often with the copying of rock paintings.

So far we have spoken only of paintings; there are also engravings in East Africa, not naturalistic, as in South and North Africa, but consisting of schematic lines, designs, and cup marks. Their occurrence in East Africa is not common, but farther south this schematic art is characteristic of a vast region stretching from Northern Rhodesia through Katanga in the Congo to northeastern Angola. Breuil and Mortelmans attributed this art to "Mesolithic" peoples and believed that only the most advanced paintings (which postdate the engravings) are contemporary with an intrusive "Neolithic" culture that reached this area from the north, penetrating down the shores of Lakes Tanganyika and Mweru. The engravings consist of deeply and lightly incised lines and also a series of dots. The symmetry of these holes, which are very common, led Breuil to assume that they were executed with a rotary drill, worked with a bow. This device almost certainly did not reach South Africa until late in Later Stone Age times. In some cases there is a deep patina over the engravings, comparable with that of the original rock surface, but this evidence is not at all reliable as a means of dating, since under certain circumstances patina can form comparatively rapidly.

The schematic engravings in East Africa are probably mostly quite modern, but some may be several hundred years old; they may be compared with the "Late White" schematic paintings found on so many rock shelters. They are, nevertheless, important, since in some cases they are linked with oral tradition, which gives the meaning of ceremonies with which they were connected.

On a steep rock face near the Kagera River at Nsongezi, Wayland discovered a great number of cup marks; the whole design reminded him of a star map. He also found a quartzite drill, over 5 inches long, which was most probably used for punching the cup marks. A cup-marked stone is also reported from the village of Samunge in the Tanganyika Rift Valley; its irregular markings make it clear that this was not a *bau* game (commonly played in Africa and consisting of a number of regular depressions in a rock or board to hold little stones or balls).

Four large stones on the lower slopes of Kilimanjaro, in the densely populated country of the Chagga tribe, are covered with long, meandering lines and, in some cases, pock-marked depressions. They are associated with the final stage of initiation ceremonies held in the past in this part of the country. The initiates camped in the bush, without shelter or clothes, and were taught tribal lore and the duties of their age group. A few selected youths were also instructed in the meaning of the engravings on the stones, which were secret and in no circumstances to be divulged. Each age group engraved a line on the rock, so that the numbers of lines represent the work of a great many generations.

Comparisons with Northern Rhodesia

In view of the fact that industries found in some of the Kondoa rock shelters are similar to the Nachikufan of Northern Rhodesia, a summary may be given of some of the features of this culture.

The rock shelter of Nachikufu is situated some 30 miles south of Mpika, in the Muchinga Hills. The walls of the cave are decorated with seminaturalistic paintings, and those of the small shelter have schematic figures which are thought to be later. Excavations in the cave revealed three Later Stone Age industries, which have been called Nachikufan I, II, and III; they were overlain by traces of Bantu occupation, and beneath Nachikufan I were Middle Stone Age artifacts.