

L. S. B. Leakey

By the Evidence

Memoirs, 1932-1951

Harcourt Brace Jovanovich

New York and London



Copyright © 1974 by Harcourt Brace Jovanovich, Inc.

All rights reserved. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the publisher.

Printed in the United States of America

Library of Congress Cataloging in Publication Data

Leakey, Louis Seymour Bazett, 1903-1972.

By the evidence: memoirs, 1932-1951.

1. Leakey, Louis Seymour Bazett, 1903-1972.

I. Title.

GN21.L37A32 569'.9'0924 [B] 74-7376

ISBN 0-15-149454-1

First edition

B C D E

Illustrations

Between pages 118 and 119

Louis Leakey at Cambridge in 1926

In the 1930s

With man-eating crocodile on Rusinga Island

An expedition in camp

Masai elder with skull injury

Stone-walled dwelling in ruined town of Engaruka

Rock paintings in Kisese/Cheke area

Steen Cottage, Great Munden, Hertfordshire

Female burial in Neolithic cemetery at Nakuru

Louis with members of first Pan African Congress on
Prehistory

Louis and Mary Leakey at Olorgesailie

Olduvai Gorge

landing every now and again on one or other of the vehicles. When, at length, we turned inland at Kendu Bay, we hoped that we had said good-bye to our faithful friends. That night, however, already halfway to Nairobi, we found that they were still with us and very hungry. We gave them a meal and resigned ourselves to the fact that they would probably escort us all the way to Nairobi—which is exactly what they did.

We were about to begin the second half of our season's work and planned to explore the side gorge at Olduvai. But since there was little water there, and certainly no fresh fish on which to feed the eagles, they could not possibly be allowed to follow us any longer. Fortunately, the curator of the Natural History Museum in Nairobi, Dr. van Someren, had erected a large aviary behind the museum a few years earlier, and this was now empty. It was forty feet high and both longer and wider than that, providing plenty of room to house our three eagles for the time being. Accordingly, I decided to leave them in the aviary and promised Dr. van Someren that I would pay for the fish he had to buy for them while I was at Olduvai.

Before we left Rusinga, however, I had a less friendly encounter with another specimen of the area's wildlife. All the water for use in the villages on the island was drawn from the lake, mainly by the women and children, who filled their earthenware pots and tin canisters and carried them on their heads to their huts. In the ordinary course of events, fetching water from the crocodile-inhabited lake was made safe by the building of an enclosure of stakes extending out into the water about five feet from the place on shore where the water was drawn. However, one crocodile had become very cunning. On several occasions it had come out of the water, crawled along the lake shore, and made its way through the grass behind the enclosure to carry off an unsuspecting woman or child, sometimes a goat or a sheep. This had been happening at intervals for nearly two years. When we arrived on Rusinga the island's chief asked for my help in getting rid of this scourge, and I promised that if the crocodile was located while we were there, I would do my best to dispose of it.

A few days later, when we were in the middle of lunch, a messenger rushed into camp to say that a crocodile was sunning itself on a small mud bank about half a mile off. I immediately

went to the spot and managed to put a bullet into the back of the crocodile's neck just behind the head, thus killing it. This is a difficult shot to make, but the only effective one. If a crocodile is hit in any other part of its anatomy it disappears into the water, even though it may be mortally wounded, and is irrecoverable. In this instance, the local inhabitants particularly wished to cut the creature open to make sure that it was, in fact, the man-eater.

The sound of the shot brought hundreds of people running down to the shore from all directions, and when they saw the dead crocodile there was great rejoicing, wild dancing, and shouting—though there were some who wept, remembering the loved ones they had lost. In a few minutes the crocodile was brought up from the mud bank onto the grass by the shore and laid stomach upwards to be cut open. It was a gruesome spectacle. The stomach contents included bracelets, beads, necklaces, and many other indisputable indications of the human meals that had been eaten. Many of the objects were identified by relatives of the victims. There was, therefore, no doubt whatsoever that the crocodile I had shot was indeed the one that had been terrorizing the people of the island for so long.

Three

During our first expedition to Olduvai in 1931, we had succeeded in taking one of the cars up the west side of Ngorongoro, right to the rim of the caldera—which is the scientific name describing the crater. (A caldera is not a volcanic crater at all, but the result of a subsidence where a volcano once stood.) It was not easy to get the car up, since we had to negotiate our way through occasional areas of rocks and boulders and over the grass-covered western slopes. We hoped, then, that it would be possible to continue along the edge of Ngorongoro and down the eastern side to join up with the main road from Arusha to Oldeani. This hope had to be abandoned because of the dense forest at the top of the eastern side of the caldera.

When we took Boswell to Olduvai, we had once again fol-

lowed the road that Captain J. H. Hewlett pioneered for me in 1931, crossing the Kenya-Tanganyika border at Loliondo. On the way back, however, I had been informed by the district officer at Loliondo that plans were being made by the government to construct a road up the eastern slopes of Ngorongoro, through the forest and over the ravines to the government camp from which the Ngorongoro area was administered. On my return to Nairobi from Rusinga, therefore, I wrote to Arusha to discover more about this project. Clearly, if we could drive to Arusha and thence to Oldeani on existing roads, proceed up the eastern forested slopes to the top of Ngorongoro, and then link up with the route we had taken in 1931, it would considerably shorten the time required for the journey from Nairobi to the gorge, even though the mileage would be greater.

In reply to my letter of inquiry, I was informed that the district officer in charge of Ngorongoro, together with the Forest Department officer and the Game Department authorities, shortly planned a joint attempt to get their vehicles along the new route to the top of Ngorongoro. I decided that we should endeavor to join up with them, so that we could all make the difficult journey together.

Accordingly, in the middle of April, I sent Bell, Kent, and White, with most of my African staff, ahead with the lorry carrying much of our equipment, planning to follow next day in the car.

The lorry got through to Arusha with ease, but the next day, near the Ngong Hills, I was caught in violent rainstorms, which turned the road into a sticky mass of "black cotton" soil—black clay that seems to be bottomless when it is wet. The car stuck over and over again in this quagmire, and I spent many hours of backbreaking work before eventually reaching Arusha and joining the others in the temporary camp just outside the township.

Next morning I again sent the lorry on ahead, with instructions to follow the road to Oldeani and then to turn off along the new track that had just been cut by the Forest Department and up which the district officer and his party intended to proceed that day. Meanwhile, I planned to drive to Moshi to meet Mary Nicol and then back to Arusha to collect Sam Howard; both of them were joining us for this part of the Olduvai season. Mary had flown up from South Africa, where she had been visiting

prehistoric sites, and Sam Howard had been working for the Shell Company in Tanganyika. Since the lorry was likely to travel very slowly, I thought I would easily catch up with it before it reached the summit of Ngorongoro.

It is, however, never wise to make precise plans in Africa. The lorry duly left in fine weather on the morning of April 20 and covered the whole of the 106 miles to the top of Ngorongoro before dark. We were less lucky. Mary, Sam Howard, two of my African staff, and I took no less than four and a half days to cover the same distance!

The first day, after collecting Mary and Sam, I planned to reach the Oldeani turnoff before dark. But again luck was against us. It rained so hard that by five o'clock there was nothing for it but to make camp by the roadside and trust for better weather next morning. Early next day our hopes were fulfilled; the sun rose high in a bright sky and we set off with great expectations. The previous day's rain, however, had turned the road into a quagmire, and we managed to travel only fifty miles before darkness fell and we were forced to camp at the base of the Ngorongoro range.

That night it rained again, without ceasing, with the result that it took us the next two and a half days to cover sixteen miles of the newly made track. On some occasions, Mary, Sam, the two Africans, and I practically carried the car and the equipment. Sometimes we unloaded the car and carried the luggage ahead for half a mile or so, and then returned to push and carry the car. Sometimes we took the car ahead and went back to get the luggage. An additional problem was that the lorry, which we had counted on catching up with in good time, carried all our food supplies, except for the little we had taken for the first two days! In consequence, the last part of the nightmare journey was made worse by the pangs of hunger.

Eventually, we caught up with Bell, White, and Kent, who had put up their tents a few hundred yards from the grass huts of the administrative officer's camp. They were delighted to see us; they had begun to worry, and would have come back in the lorry to look for us had the road conditions not been so terrible.

After a badly needed night's sleep, we awoke to find the sun was shining once more. The clouds had lifted, and we had a magnificent view down into Ngorongoro Crater, with its shallow

soda lake at the bottom and its groves of yellow-barked fever trees, which were the home of a medium-sized herd of elephant. Through our field glasses, 2,000 feet below us we could see countless wildebeest, hundreds of zebra, and an occasional rhinoceros. I had never seen the crater from this angle before, and the others, of course, had never seen it at all. It was a most exciting moment.

We stayed with the district officer for a day and a half, in order to rest and to discuss with him the government's plans for making a graded link road from his camp, via Olduvai, to the Serengeti Plains. We then started down the track we had pioneered in 1931 and reached the mouth of the gorge in about six hours.

In 1931 we had merely cleared away boulders and cut down a few trees and bushes on this part of the journey, but the grass was now so long, owing to recent rains, that it was difficult at times to pick up our original route, and we ran into trouble again and again with hidden rocks, stones, and tree stumps. Having reached the Balbal depression, we crossed it diagonally to the point where the Olduvai Gorge debouches abruptly onto the flats, and then wound our way up the first step of the depression and camped near our 1931 site.

It is almost impossible today, as one drives from Arusha township to our present Olduvai camp in a matter of four hours, to believe that the same journey once took more than five days to complete. From the tourist point of view, the change is obviously advantageous, but I still look back with pleasure at the hardships of that pioneer trip and would gladly endure them again for the mere satisfaction of achievement in the face of so many difficulties.

My aim for the 1935 season was to spend most of our time exploring the gorge to the southwest of the point where the main and side gorges meet. I therefore intended to establish a camp as near as possible to the junction. We had made our previous camps on the open plains beyond the edge of the gorge on the north side. But I believed that near the place I had in mind there might be a chance of driving the vehicles off the windswept open plains and part of the way down into the gorge.

When we reached the area where the two branches of the gorge met, we left our vehicles and started to explore on foot.

Before long we found a place where the sheer cliffs of the gorge changed to a gentler slope, and eventually we managed to get the cars within fifty feet of the floor of the gorge. Here we established Olduvai Camp 6.

This was at the end of April 1935. The grass was green, and the whole area was teeming with herds of game. There were pools of water too, in parts of the main and side gorges. The camp stood in a clearing between two patches of *sansevieria* (wild sisal), just opposite FLK I, the place where, in 1931, we had found the first stone tools *in situ* in Bed I. On this occasion, however, our objective was not to explore the FLK area, but to extend our search westwards up the side gorge into an area that we had not previously prospected thoroughly.

During our first night in this new camp a number of lions came round to investigate, in the same way as they had done during our first night in the 1931 camp, when one lion had walked right through the tent in which MacInnes and Fuchs were sleeping! On this occasion the lions contented themselves with roaring at us. Inasmuch as most of the party had never heard lions at close quarters before, they experienced a great thrill.

Our arrival had been witnessed by various Masai, since there were many *manyattas*, or Masai villages, in the area, owing to the temporary availability of good grazing on the plains and water in the gorge. Early next morning a group of elders accompanied by a few *morani*, or warriors, descended on us. They were mostly men whom I had known in 1931, and they were delighted to see me. They brought us gourds of curdled milk and a fat-tailed ram as presents. I, on my part, had brought a quantity of dry tobacco leaf, and this I now gave the elders in return. The dry tobacco leaf was extremely acceptable, since, normally, the Masai could obtain it only at Oldeani or Loliondo.

After greetings had been exchanged and all the proper courtesies observed, the elders inquired whether I would, as before, conduct a daily medical clinic for their sick. I had, of course, come prepared to do so. We made a counterrequest that they supply us daily with fresh milk for as long as they remained in the area. We insisted, though, that they must milk the cows into containers we would supply and not into their own gourds. There was a good reason for this request: the Masai normally

rinse out their milk gourds with cow urine. This may have been satisfactory from their point of view, but we knew from previous experience that it made the milk taste strongly of ammonia. Even when put directly into our own containers, the milk had to be boiled because of the risk of bovine tuberculosis. Such freshly boiled milk was, however, much more palatable than any of the types of powdered milk available in East Africa at the time.

Because of the expense and difficulty of bringing in supplies of petrol from Arusha, we used our transport at the gorge only when it was absolutely necessary; all our exploring was conducted on foot. Our aim was to investigate the side gorge and its subsidiary gullies, pinpointing the places where fossils or stone tools were being exposed by erosion—these to be excavated in due course. Daily, therefore, while White and Kent carried out their mapping and drawing of geological sections, the rest of us were busy crawling up and down the exposures on hands and knees, looking for specimens. Peter Bell also began collecting the birds of the area so as to keep his promise to the British Museum of Natural History.

Every day we used to get up before dawn, have breakfast, and leave on foot, taking with us a little food and bottles of drinking water, together with notebooks, dental picks, brushes, and other necessary equipment. We were not, as I have said, intent on general collecting, but, rather, on locating sites for future work. However, if a rare fossil was found exposed on the surface where it was liable to be trampled on by animals or damaged by the weather, it had to be rescued and taken back to camp. When stone tools were found, a small selection was collected from the surface, marked with an index number, and taken as a sample of what that particular site could be expected to yield in the future. When a particularly rich site was found, the temptation to abandon the rule was great, but had to be resisted.

Altogether, during this period, we located some twenty good sites, of which three were particularly rich—SHK II, named after Sam Howard, BK II, named after Peter Bell, and MNK, named after Mary Nicol. The BK II and SHK II sites were, in fact, so rich that eighteen years later, in 1952, we selected them for the first intensive excavations at Olduvai.

I am frequently asked how it came about that although we started our survey at Olduvai in 1931, we did not carry out our

first major excavation until 1952. The answer is simple. It lies in my determination to explore the huge area of the gorge before starting detailed excavation. This took twenty years. Had it not been for the war, the lack of funds, and the fact that I took off three whole years from my prehistoric studies to write a monograph on the Kikuyu tribe, the initial survey would not have been so drawn out.

To give a clear picture of the immense task we undertook in 1931 and 1935, I must remind my readers that we explored about 180 miles of exposures, ranging from a depth of about 300 feet to as little as 50 feet, before we undertook any major digging. Had we not worked to a plan, we might have found ourselves devoting several years to the excavation of one of the less important sites while much more significant ones remained unstudied because they had not been located. A planned program and patience are vital to satisfactory work in prehistory. The person undertaking the study must be willing to devote many years, if not his whole life, to the task, and should not aim for quick results in the field, to be followed by a comfortable armchair job at a university.

One day in November of 1935 Mary located the site we now call MNK as we crawled on hands and knees over an eroded area at the contact between Bed III and the overlying Bed IV. The surface here was scattered with Acheulean tools and flakes, as well as numerous fossil animal remains of antelope and pig. Among these Mary found two small fragments of a human skull. We spent many hours thereafter trying to locate further parts of this hominid, but without success.

The site was also of particular interest for another reason. Here, at the junction of Bed III and Bed IV, there were whole banks of fossil bivalve shells. These are fresh-water mollusks that still occur in many of the larger streams and rivers in Africa today. Most of the shells we found were intact and had undoubtedly become fossilized where we found them, through the drying up of the water in which the mollusks lived.

It is worth noting here that when we eventually began our detailed excavation of Olduvai sites, only one of the numerous fossil hominid remains came from a site not previously located and marked for detailed study during our twenty-year preliminary survey.

Within a few days of our arrival we had set up the promised

clinic for sick and wounded Masai. My usual routine was to come back to camp late in the afternoon, quickly have some tea and clean myself up, and then go out to attend to my patients before darkness set in. Most of the sufferers complained of headaches, running sores, eye infections, or tapeworm. Occasionally, there was a mother with a baby suffering from acute diarrhea or a warrior with a fresh bleeding wound. All this was routine.

Then, one evening, as we all came back into camp tired and dirty, I saw a young Masai warrior and a much older man sitting in the shade of a tree on the edge of the camp. They both stood up to greet us as we approached, and I answered rather impatiently, suggesting that they sit down and wait; I would come to treat them just as soon as I had had my tea. But when the old man sat down I noticed the top right-hand side of his head. I was utterly appalled, for there I saw a gaping, suppurating, fly-covered, filthy wound about two inches long and one inch wide.

All thought of tea or rest was immediately put aside. I rushed to my tent, cleaned up, and came back with the medicine box to start an immediate investigation while the light still lasted. Apart from complaining that he had a headache and that the wound was hurting him, the old man claimed there was not much wrong with him. Interrogation soon revealed that the warrior who had escorted him to camp was his grandson, and that the old man had been wounded at a time before he himself was married. Apparently, during a fight some forty years previously a long, heavy Masai spear had been thrown at his head and had penetrated the wall of the skull. As the weight of the spear made it fall downwards, it had levered off a piece of the bone, exposing the brain. The tip of the spear had also inflicted some damage on the brain itself; according to the old man, "it had bled a little." The wound had quickly become septic, and his friends had felt certain that he would die. Somehow or other he had pulled through, and a soft skin had formed over the wound. It was this, for the most part, that had kept out flies and dirt. In due course he had married, and now he was a grandfather. He went on to say that from time to time the wound opened up and he had severe headaches. This was one of those occasions, so he had come to me as the *bwana mganga*, or doctor, to put him right.

The whole wound was filthy and full of pus. The brain damage extended inwards, and the brain itself appeared to have either shrunk or disintegrated a little, leaving a hollow large enough to contain a few ounces of fluid beneath the surface of the bone. My first task, obviously, was to clean the wound. I clipped away the ingrowing hairs and then began the task of trying to clean the wound itself. I dared not probe into the hollow, and I wondered what I should do. Finally, I made up a weak solution of hydrogen peroxide and poured about three tablespoonfuls into the gaping hole. There was an immediate frothing, and when I told the old man to lean over to one side the peroxide solution poured out into a basin, bringing with it a lot of dirt and dead flies. After several such treatments that first evening, the wound was a great deal cleaner, and since the old man seemed rather tired, I decided to apply sterilized gauze, and then let him go to the camp and get some food and rest. I told him I would continue the treatment next morning, when the light was better. (In those days we had only wick lanterns, which burned kerosene, not the excellent Petromax lamps we use today.)

Next morning my patient reported that he felt very much better and said he no longer had a headache. This, of course, could have been due to the aspirin I had given him the previous night, but it was also, I suspect, partly psychological, from his feeling that something positive was being done for him. When I examined the wound more closely in broad daylight, I found that there was a great deal of dirt and pus remaining, and I repeated my weak peroxide treatment. I carried on with this three times a day for two days, at the end of which time the whole wound had cleared up remarkably well and looked reasonably healthy. Moreover, in one corner a thin film of translucent skin had begun to grow and cover the exposed surface of the brain.

At this point, my patient announced that he was ready to walk home. An inquiry revealed that this meant a walk of some eighteen miles to the other side of Lemagrut Mountain. I made a countersuggestion. I told him that one of my vehicles was going to collect stores in a few days and that he could travel with us to the nearest hospital, where, in all probability, the doctor would

attach a light metal cap to his skull to keep out the dirt and flies.

This suggestion was strongly rejected; in the end, I simply gave the old man a beret and begged him to wear it night and day. Just before he left I carried out various tests to find out what effect this long-standing wound had had on his senses. So far as I was able to judge, he had lost none of his faculties; his sight, hearing, smell, feeling, and taste were all unimpaired. We saw no more of him after that, but a few days later his grandson arrived driving a fat-tailed ram as a thank-you gift from his grandfather.

About this time, a middle-aged man who called himself a Masai walked into camp one day. Physically, he did not look like a pure Masai, and after a few questions I discovered that he was, in fact, half-Kikuyu and spoke some of that language. He had been born in the Narok district of Kenya, but his family had long since moved to Tanganyika and was now living near Ngorongoro. He himself had transferred his flocks to a *manyatta* on the far side of Lemagrut Mountain, not far from Laetolil.

He stayed around for several days and joined us regularly when we went fossil hunting, showing great interest in everything we were doing. On his last day, he asked whether I would like to know about another site where he had seen similar fossils, not far from where he was living. Naturally, my reply was yes. He promised to guide us in our vehicles to the spot, but warned that it would be a lengthy and difficult journey. We would have to drive westwards beyond the head of the gorge at Lake El Garja, then turn southwards to Naibadad, after which it would be an easy run to the Laetolil River. We had some old German maps with us; as far as we could see, the river that he was calling Laetolil was a stream the Germans had named Vogel Fluss.

Sanimu, for that was his name, suggested that he go home on foot and return in about ten days' time bringing with him samples of the fossils, after which he would pilot our vehicles to Laetolil. True to his word, when he returned he brought with him in a little bag some pig and antelope teeth, all of them heavily fossilized and some embedded in a hard rock matrix.

That decided me. I immediately made plans to close down the camp at Olduvai for a few weeks and leave, with Sanimu, to investigate the new area. By this time, in addition to the equipment we had brought with us from Nairobi, we had accumulated a large quantity of stone tools and fossil bones, including the complete skull of an extinct hippopotamus known as *Hippopotamus gorgops* and a pair of horn cores of the giant bovid *Pelorovis*, which we had reinforced with plaster of Paris and iron bars. Kent had also collected a large number of rock specimens, and Peter Bell had some boxes containing zoological material for the British Museum of Natural History.

Since Sanimu had stressed that we must travel as lightly as possible, I decided to leave most of our equipment and collections behind in our camp. We therefore cleared a space in the center of one of the big patches of sansevieria, a plant known to the Masai as *duvai* (it is from this word that the name Olduvai is derived). In this clearing we stacked our excess stores and equipment and the boxes of specimens and closed the gap, which was our entrance to the enclosure, with branches of thorn.

Sanimu told us that it would not be necessary to carry much water on this trip, since he planned for us to camp the first night near a spring at the west end of the gorge (where the tourist camp run by George Dove is now situated); on the following night we were to camp by Naibadad Hill, where there were several springs. The third day we were due to arrive at Laetolil, where at this time of the year there should be a beautiful running stream. In spite of Sanimu's assurances, I insisted on carrying a number of four-gallon cans of water from the stagnant pool in the gorge, since one could never be sure of reaching the proposed water points at the expected times.

So, in due course, we set off in a lightly loaded lorry and car and headed due west to Lake El Garja. I had last seen El Garja in 1931, when it was nothing but a dry soda dust bowl. Now, because of the recent heavy rains, it had become a shallow lake. Unfortunately, the water was exceedingly saline and quite undrinkable, and was not even pleasant to wash in, owing to the concentration of soda. However, as Sanimu had promised, there was a small spring of sweet water at the extreme southwest

corner of the lake, and there we made our first camp late in the afternoon. While the light lasted I explored briefly round the lake basin, but did not locate any archaeological sites.

Next morning we packed up and headed southwest, after having considerable difficulty in getting the vehicles up the cliff and out of the El Garja depression. Then we had to travel very slowly over the plains, since the grass was three or four feet high—higher, in fact, than I have ever seen it in the Olduvai region in all the years since 1934. We were in constant fear that one of the vehicle wheels would hit a tree stump or fall into a hole or even a gully masked by vegetation. When the going was very rough, either Sanimu or one of our men walked ahead checking the line of advance. By late afternoon, having covered only about sixteen miles, we arrived at the granite outcrop of Naibadad Hill and established a camp beside one of the fresh-water springs that surrounded it.

The following morning, much to Sanimu's dismay, I decided that we would have to spend most of the day overhauling our vehicles, tightening nuts and bolts, and checking all the tires for thorns. While Ndekei and I spent long hours on this task, the others explored the area round Naibadad and discovered a number of small Mesolithic Wilton-type living sites, with a scatter of artifacts and potsherds. They also located several stone mounds that appeared to be prehistoric burial sites.

Peter Bell, meanwhile, was searching for birds to add to the collection he was making for the British Museum. He located a colony of green-winged, red-necked lovebirds, whose nests were in holes in the dead branches of thorn trees, and called me over to look. I was very interested in the behavior pattern of these birds; it was one I had never seen before. Whenever a mother bird left the nest—presumably containing eggs or young—she would pluck small, thorny twigs and, using her beak, stuff them into the entrance of the nest, thus barring the way to predators such as lizards, egg-eating snakes, shrikes, and small hawks. When she came back she would pull away the thorny barrier to re-enter the nest. This was the first time I had witnessed the nesting habits of these lovebirds, but later, at our camp near Olduvai site BK II, I saw exactly the same thing happen. It would appear, therefore, to be part of the regular nesting behavior of the species and not an isolated event at Naibadad.

The next day, with our vehicles overhauled and the tires free of thorns and the risk of punctures, we set out again and shortly after midday reached the banks of a beautiful flowing stream. This was the Vogel Fluss of the German mapmakers and our objective—the Laetolil valley. There were many Masai *manyattas* in the area, and cattle, sheep, goats, and donkeys were all watering as we drove up. Very soon a group of elders came over to our cars to inquire of Sanimu what it was we wanted. Sanimu told them we had come to look for “old bones and stone spears,” and with his help as interpreter I tried to explain a little bit more about the object of our search. One of the elders was quick to volunteer the information that there was a site of “old bones” some fifteen miles away, while everybody agreed that about five miles upstream there were many “heavy stones that looked like bones.”

Our camp on the borders of the Laetolil stream was a very pleasant one. We made a clearing and set up our tents beneath a group of large, shady yellow-barked fever trees. The Masai warned us that there were many lions in the area, as well as numerous hyenas, but they assured us that the lions were not man-eaters, so we were not unduly worried. We warned our cook, however, to place all the cooking utensils on top of the lorry cab each night, and we too were careful to keep all our stores shut up in boxes and to place anything made of leather, such as camera cases, shoes, boots, and belts, out of reach of hyenas at night.

In the early hours of the morning, while the stream ran crystal-clear, we filled all available water containers. Later in the day cattle and other livestock moved into the water upstream of our camp, so that it became increasingly clouded with mud, until by evening it was not fit even for washing.

The day after we set up our camp Sanimu guided us in our vehicles upstream to explore the fossil beds. We found an area of about two square miles of heavily eroded badlands, where residual lumps and blocks and strange shapes of rock rose out of an otherwise more-or-less flat surface. Some of the rocks were in the form of pillars, ten to fifteen feet apart, and the whole fossiliferous area was about ten feet above the existing stream bed.

Fossil remains of certain types of animal were numerous;

others were notable by their absence. For example, whereas at Olduvai remains of hippopotamus and elephant were always common except in Bed III and Bed V, there was no trace of remains of these creatures at Laetolil. Moreover, the rocks from which the fossils were eroding were not ancient lacustrine or fluvial beds, but appeared to be deposits laid down under dry-climate conditions. Fossil remains of land tortoises were common; in addition to several complete fossilized tortoise shells, we found three or four dozen fossilized tortoise eggs. Twice we found fossilized birds' eggs like those of the plover. There were also numerous rodent remains, representing seven or more species, and the bones, horn cores, and teeth of several species of antelope were common. We found a few remains of fossil pigs, but none of them of the same species as those in the Olduvai deposits. In fact, the total picture represented by the remains suggested an ecological setting wholly different from Olduvai. This was heavily underscored by the total absence of teeth or bones of any member of the horse family, which are so common in almost every layer of the Olduvai fossil beds.

When we came to review the specimens we had found at Laetolil, it was very difficult to assess whether the major difference from the Olduvai assemblage was due solely to the different ecological setting or whether it also represented a different geological age. There were several major problems to solve, one of which was the presence of a good many specimens representing jaws and teeth that appeared to be of a fossil okapi. Today, okapi are present only deep in the Congo forests, and the rest of the fauna did not suggest to us a forest habitat. (Recent work at the National Museum, Nairobi, has shown that these teeth belonged, in fact, to a miniature giraffe and not to an okapi.) Another major difference between the finds at Laetolil and those at Olduvai was the total absence of any stone artifacts here.

One day we traveled some fifteen miles with the elder who had reported seeing another series of fossil beds, but since he had not been there himself for some time, we were unsuccessful in locating the exact spot. We did, however, find a few fossils, including fragments of teeth of a very primitive type of elephant, in the general area to which he took us.

In the Serengeti, sand grouse are present in very large numbers at certain times of the year, gathering in flocks of

many thousands to feed on the grass seeds on the open plains and fly to the scattered water holes to drink. Often three or four different species mix together in one flock. At Laetolil there were many sand grouse. As it was the breeding season, they were not in flocks, but in pairs, with the females busy incubating their eggs. Each day, in our walk from the camp to the fossil beds, we would put up male birds; if we then looked round closely, we would discover well-camouflaged females crouched on their nests on the ground. I suppose that we saw twenty or thirty nests each day during the few weeks we were there.

Lions, as the Masai had told us right off, were rather common, having concentrated in the area because of the huge herds of Masai cattle and sheep. A few days after we arrived an amusing incident occurred—at least, it is amusing in retrospect. We were exploring the badlands area. Mary was nearest to me, Kent and White had gone off in a slightly different direction, and Peter Bell was with Heselon. Suddenly, I noticed the pug marks of a lion or lioness, and because they looked rather fresh and I felt the lion might be quite close, I called out to Mary not to wander too far. I went on with my own search for fossils; when I looked up next, Mary was heading towards a low mound of fossiliferous deposits about 150 yards to my right. I was just about to shout to her not to go any farther when I saw her move round behind the mound. The next minute I heard two sounds—a sharp cry from Mary and a low feline growl! In a flash I saw two figures running fast in opposite directions—Mary towards me and the lioness up a grassy slope. The lioness was every bit as frightened by the confrontation as Mary was. Luckily, she had no cubs with her; otherwise, the situation might have been very tricky.

The days at Laetolil passed all too quickly, and it was soon time to make tracks back to Olduvai. Bell, Kent, and White were due to leave us shortly in order to return to England to resume their studies. I was going, with Mary and the rest of my staff, to make a brief examination of some stone-walled ruins at a place called Engaruka, on the eastern escarpment beyond Ngongoro, since we had been asked by the Tanganyika government to write a preliminary report indicating whether or not these ruins were sufficiently interesting to justify the expense of a more detailed investigation.

I had also promised to take Mary to visit some of the prehistoric art sites in the Kisese/Cheke area, round the town of Kondoa Irangi, which I had briefly examined in 1929, during a detour in a journey to South Africa. Mary had recently come up from Rhodesia and South Africa, where she had been shown a number of famous prehistoric art sites, and she was anxious to see how the Tanganyika rock paintings compared with those farther south.

As we were packing up to leave for our Olduvai camp, Kent decided to make the trip, with two of our men, across country, over the lower slopes of Lemagrut Mountain. They intended to meet us at our Olduvai camp and expected to get there in a single day, whereas it would take the rest of us two or even three days. At first Sanimu said he would go with them on foot, but he changed his mind and decided to travel back with us—at least as far as Lake El Garja—since he feared we might lose our way. Although we expected that the journey would be slow and difficult, in fact it was so easy to follow our own tracks back—because of the way the grass had been broken down by our vehicles—that we made the return journey in a single day. Kent and his group, on the other hand, lost their way on Lemagrut and had to spend the night in a Masai *manyatta*, where they were nearly eaten alive by fleas. On their arrival next day at camp they were itching all over and looked as though they had measles.

The water situation at Olduvai had now deteriorated seriously, and our water hole near the camp was little more than a liquid, muddy swamp, in which a rhino wallowed daily and, after wallowing, added a certain amount of urine to the puddle to keep it liquid. The lions and most of the other game had moved away, and the only large wild animal sharing the water hole with us was the rhino. Not unnaturally, the water tasted very unpleasant and was not really fit to drink, but it was all we had. We devised a simple filter of charcoal and sand through which we passed all the muddy, ammonia-tainted liquid. We boiled the filtered water thoroughly and then purified it further with alum, to precipitate the remaining sediment. The resulting liquid was not detrimental to our health and was just drinkable when made into tea or diluted with orange juice. There was

much better water on the far side of the Balbal, at a little spring eighteen miles away, but we had so little petrol left that we could not spare any to go and fetch it.

I was even doubtful whether the meager supplies we had left after our unexpected trip to Laetolil would be sufficient to get the vehicles back to Arusha via Ngorongoro. Since we knew that we could get petrol supplies at Loliondo, sixty-five miles to the north, we decided that the trip to Nairobi, taking Kent, White, and Bell back, would have to be made via Loliondo and Narok, rather than on the better road via Arusha. Our food too was now running very short, and I decided to divide our diminishing supplies of both food and petrol, keeping half in camp in case of an emergency and giving the rest to the party that was heading for Nairobi, in the hope that it would be sufficient to get them as far as Loliondo. If not, they would have to get as far as possible and then walk to the administrative post, purchase fresh supplies, and carry them back to the lorry. Once they reached Loliondo they would have no further trouble so far as fuel for the lorry was concerned, and the only risk was a mechanical breakdown. When they reached Nairobi, the lorry was to be taken in for the necessary repairs and overhaul, and then Ndekei and Thairu would bring it back with fresh food supplies, a stock of petrol, and our mail. I was hopeful that they could be back in about ten days, and certainly in less than fourteen, unless something went very wrong.

Those of us who stayed behind at Olduvai had the small Rugby car for emergency travel. Quite apart from the fact that our food supplies were low, there were five smokers in camp and no cigarettes at all. All of us, therefore, spent much time every evening hunting in the vicinity of the camp for old cigarette stubs, from which we made new cigarettes by rolling the tobacco in toilet paper. We rationed ourselves to two smokes a day. Most of our supplies, such as tinned milk, flour, and various tinned vegetables, were so low that we doubted they would last a week, but we still had a considerable quantity of rice, plenty of tins of sardines, a little maize meal, and a few potatoes. We also had a little tea left, to take away the taste of the foul water, but no more fruit juice.

Inevitably, as we searched for fossils over the next two weeks, we were counting the days to the possible date of return

of the lorry—nine days minimum. The tenth day came and the eleventh, then the twelfth, thirteenth, and fourteenth, but still no sign of help. We held a council of war. Drastic action was indicated, because it was becoming obvious that something very serious must have happened to the lorry.

Four

At the council of war, it was agreed that if the lorry had broken down before it reached Loliondo somebody would have walked on to the administrative post or returned to inform us. In either event, we should certainly have heard by now. It therefore seemed probable that if there had been trouble it must have occurred well beyond Loliondo. It was clear that somebody must go in search of our party. The problem was who should go and who remain behind, since the small Rugby car could not possibly take all of us, as well as our equipment.

I sent Heselon off to review the stores situation. He reported that there was ample food for some time, albeit of a limited variety, while the water from the water hole, although muddy, could be counted on to last another three or four weeks. If the necessity arose, one of the staff who remained behind in camp could walk up Ngorongoro to the administrative post to seek help.

After further discussion, it was agreed that Mary, Thiongo, and I should leave forthwith with the car, loaded as lightly as possible, in search of the missing lorry, while Heselon and the other men remained behind. If we were not back by the fifth evening they were to set out on foot to Ngorongoro to alert the administrative officer. We took all the remaining petrol, a few cans of the filthy water, a little rice, and one or two tins of sardines, and set off. We made good time, following the tracks made by the heavily loaded lorry fifteen days earlier. There was still no road—in the ordinary sense of the word—from Olduvai to Loliondo, but in 1931 we had engineered crossings over some of the deeper gullies. It was necessary to relocate these, since we could not afford the time to make new ones.

By midday we were within two miles of the Loliondo administrative center. At this point, one road led east to Loliondo and the other west to Pussumuru and Narok. We took the road to the east, since it was essential to speak with the people at Loliondo, to find out whether they had any news of the lorry, and also to purchase petrol and food. We decided to leave Thiongo at the road junction, just in case the lorry should arrive while we were at the Loliondo shopping center.

Mary and I had heard that the new district commissioner at Loliondo had recently been joined by his wife; the rest of the resident officers were bachelors. As we drove the last two miles, therefore, Mary and I guessed at what the reaction of the only white woman in the district would be when she saw us arrive. We were proved absolutely right when, at lunchtime, we stopped the car outside the commissioner's bungalow. Out came a young woman in a spotless white dress and with a beautiful hairdo; she promptly said to Mary, who was in torn khaki trousers and a very dirty bush shirt, "My goodness, the first woman I've seen for months!"—more or less exactly the words we had expected to hear from her.

We were cordially received, and over drinks we explained the reason for our visit. Unfortunately, there was no news of our lorry, except that it had passed through Loliondo heading northwards. The water we drank during lunchtime tasted like nectar after the stuff, flavored with rhino urine, we had been drinking for days, and we were thankful to have the opportunity of emptying all our water containers, including those holding our water for washing, and refilling them with fresh water from a spring. The district commissioner and his wife were most anxious for us to spend the night with them, but we felt it was vital to continue our search for the missing lorry.

Before leaving we stocked up at the local shop with tins of meat, vegetables, and fruit, and then we set forth once more. When we reached the turnoff, we found that Thiongo was still at his post, but he had been joined by a number of young Masai *morani*, or warriors. None of them had news of our lorry, but they warned us to be careful as we proceeded on our journey, since there were rumors of some kind of serious political trouble in the Narok district, including one that the district commissioner had been murdered. Much worried by the news, we set off

sionary in Northern Rhodesia. He himself had published two volumes on the Ila tribe, and, realizing the value of a study in depth such as mine, he tried very hard to help. I also, naturally, approached the people who had subsidized my two years' work—the Rhodes Trust in Oxford. They felt, however, that since the trust had already spent a great deal of money on making it possible for me to prepare and write the book, it was up to some other organization to pay for the cost of publication.

In due course, I interested a wealthy Kenya landowner, the late Colonel Ewart Grogan, a romantic figure who, in his youth, had walked the length of the African continent, from the Cape to Cairo, since his fiancée had made this a condition of her marrying him. Colonel Grogan, hoping that some publisher would accept the book for publication if it were subsidized, promised to provide £500 if someone else would provide an equal sum. However, I was unable to find anybody to match his offer. Then war broke out, and so the book, which had taken two and a half years to write, remained locked in a safe, unavailable to students and anthropologists alike.

As the war clouds of World War II gathered, Mary and I had to decide whether to return to the United Kingdom or to remain in Kenya. Her family very much wanted her to come back, but before we reached any decision the Kenya government set up a manpower committee, and all men between the ages of eighteen and fifty were required to register immediately. I did so and was at once given an appointment in the CID, in what was called the Special Branch, Section 6, concerned with civil intelligence.

On September 3, 1939, the day war was declared, a colleague and I were on our way home from an assignment we had carried out in the area round Mount Kenya. We were approaching the Sagana railway bridge, about fifty miles from Nairobi, when we noticed a small group of people crawling through the bush towards one end of it. Since we had been warned that sabotage might be attempted against some of the Kenya railway bridges, we immediately decided to investigate. Leaving our car by the side of the road, we set off on foot, fully expecting to find a small group of fifth columnists preparing to blow up the bridge.

When our quarry realized that we were stalking them, they immediately assumed that *we* were coming to blow up the bridge and set an ambush to catch *us*! Suddenly we and they

came face to face and, in the moment of recognition, felt very sheepish about our strange antics. The people we were stalking turned out to be British settlers who had been sent to provide protection at both ends of this important railway bridge. Following orders from the commissioner of Fort Hall, they were moving down to the bridge as quickly as possible to defend it against possible saboteurs until such time as the police or the military could provide a proper guard.

Soon after war was declared, in addition to my other duties in connection with intelligence I was called upon to provide a weekly broadcast to African tribes in four languages—Kikuyu, Swahili, Luo, and Kamba. Of these four, I spoke Kikuyu and Swahili fluently, Kamba fairly well, and Luo not at all. I was given four men to assist me in this task. My job was to select the news items that were to be translated into these four languages and to organize listening points all through the country, at chiefs' villages and public market places, where the population as a whole could hear a simple version of the war news, to counteract any rumors that might be going round the countryside. The task of selecting the news was not an easy one, and the necessity of putting it into language that would be intelligible to those who listened was even more difficult. It is not a simple matter, in any circumstances, to translate English into a Bantu or Nilotic language, and many serious confusions can arise from overliteral translations. None of the Africans attached to me had ever undertaken translation work, although they did understand the English language. I had, therefore, to be very careful to guard against careless wording of news items.

There was also a suggestion around this time that the government should issue a weekly newspaper or newsheet in the Swahili language, to augment the news that was going out on the wireless and keep the Africans better informed of the war situation.

The late Colonel Oscar F. Watkins and I were asked to draw up plans for a possible government-sponsored newspaper, but eventually it was decided that it would be better to allow the existing privately owned newspaper organization, the *East African Standard*, to plan an extra weekly issue in the Swahili language. This newsheet for Africans was started at the outbreak of war. Today that same paper, *Baraza*, has become a

regular feature of the East African newspaper scene, in a full-fledged newspaper format.

Another of my duties at the time was to visit outlying areas and persuade the chiefs to call *barazas*, or meetings, of the elders in order to give them the latest war news and to encourage their young men to volunteer for service in the King's African Rifles or some other military or paramilitary department.

The situation then existing in northern Tanganyika was a curious one. Between the two wars a large new German colony had been established there with the permission of the British government, which held a mandate to govern the country under the League of Nations. Fortunately for Kenya, its intelligence service was highly efficient, and it was well known that many of the immigrants were of the Nazi persuasion and that Nazi cells were being organized to take action upon the outbreak of war. In fact, the whole situation was so closely watched by intelligence that when war was declared nearly all the Germans who had been indulging in subversive activities were quickly picked up before any serious incidents could occur.

It now began to seem certain that Italy, under Mussolini, intended to join Hitler in the war against the Allies. This, from the Kenya point of view, constituted a real menace. On our northern borders, Italy then occupied Abyssinia (now Ethiopia) and Italian Somaliland.

We knew that in both places they had strong military installations and air bases. Consequently, a great deal of time had to be spent in organizing an intelligence network throughout the Northern Frontier District of Kenya, to check on the possible infiltration of fifth columnists. We also intensified our checkup on the large numbers of Italians, Somalis, and others living in Kenya who had Italian contacts. All this involved a considerable amount of detailed investigation, since we had been ordered to compile a complete record for each individual. Though in the end most of this vast accumulation of information turned out to be superfluous, it is a necessary part of the routine work of an efficient and well-organized intelligence service.

Despite the preparations for the impending conflict, the Kenya government, at long last, was persuaded by a number of us that steps must be taken quickly to give real protection to wildlife. There were, of course, game reserves under the control

of the Game Department, but this merely meant that, in certain areas, hunters could not get licenses and poaching was controlled to some extent. Many of us felt that the situation could not be left as it was. Encroachment was taking place all the time; there was a movement to reduce the size of the reserves, and there was clamor from Africans for the government to kill even the animals in the reserves, because of the competition for fodder between the plains game and domestic stock and because of the depredations of lion prides, which were getting larger and more numerous.

The Kenya government therefore set up a committee of inquiry to formulate a sounder game policy. Mervyn Cowie was active in stirring up public opinion for the project, and he was strongly supported by men like Archie Ritchie, Alan Tarlton, Donald Ker, and Syd Downey. I was also very much behind his efforts, as was the whole Natural History Society.

Thus began the attempt to take the protection of wildlife out of the hands of government departments and deliver it into those of an independent board of trustees, which would be able to accept support from international organizations in a way that a government department could not.

Dr. van Someren, who was then the curator of the Coryndon Memorial Museum, and his friend "Bus" Browne were also exceedingly active in support of the scheme. They had, at long last, succeeded in photographing and filming lion and rhino in the Lone Tree area, in what is now the Nairobi National Park, and were anxious that the first national park in East Africa should be on the site of what was then the Nairobi Commonage.

When I was a child, an outing to the commonage was one of the highlights of a visit to my Uncle George and Aunt Sibbie in Nairobi. Father and Uncle George would arrange to take Mother, my sisters, and me out to the plains just beyond the Nairobi railway station. We went in rickshaws, and that was where my love of wild animals and of all nature was born.

After the interruption of the war, and the temporary break in all such activities as wildlife preservation, the committee re-assembled, and at the end of 1946 our objective was achieved. Colonel Cowie was chosen as the first national parks director, and many of us who had been his supporters in the campaign became founder trustees.

later, when the ants succeeded in getting onto the ceiling, from where they dropped down on the net of our son Richard's cot and so down the sides and into his bed. On this occasion, we happened to go into his room quite accidentally and were able to rescue him before he was actually attacked.

These ants are a real scourge to domestic animals and livestock in Africa. They attack puppies and kittens—who are relatively helpless when they are born—sitting hens, ducks, and turkeys, and even lambs and calves. The suddenness of the attack by thousands of ants all biting simultaneously makes it practically impossible for the mother to remove her young in time to save their lives.

Horses too, when confined in a stable, are often the victims of a vicious attack. On more than one occasion, Mary and I, our staff, and our children (in the days when the children were growing up and had ponies) have been awakened in the middle of the night by sounds of frenzied kicking and neighing from the stables and have gone out to find our ponies being attacked by an army of *siafu*. When this happens the poor animals get frantic with pain, and it takes several people to hold them still while others are dealing with the ants in the same way as we dealt with those on Jonathan that night.

Although *siafu* must rank as a menace as far as human beings are concerned, there is little doubt that they are one of nature's means of controlling the population of some of the smaller creatures whose young are helpless, and even of some of the larger mammals. Marching down into dens and burrows, they attack young jackals, wild cats, mongooses, and many other creatures. I suppose several thousand young animals are killed every year in this way.

It is possible that the introduction of *siafu* might have been an answer to the rabbit problem of Australia—were it not for the fact that, having once dealt with the rabbits, they would have almost certainly turned their attention to newborn lambs and other helpless creatures.

Over the Easter weekend of 1942, Mary and I managed to get away from Nairobi for one whole day. We had been saving some of our petrol ration for just such an occasion, and on this particular Easter Monday we set off for the area around Mount

Ologesailie, on the floor of the Rift Valley, in the direction of Lake Magadi.

We chose this spot because we knew that in 1918, right after World War I, C. W. Hobley, the provincial commissioner, and Professor J. W. Gregory, from Glasgow, had located in this area a "bank of white diatomaceous earth," in which they had found a few handaxes of the kind known to prehistorians as Acheulean. This fact had been reported in scientific journals, but the exact position of the discovery was not known to us. I had, in 1929, sent geologist John Solomon down to the area for six weeks to see whether he could locate any fossil beds or deposits containing artifacts, but he had had no success. I had always, however, been determined to continue this search, and now at last we had a whole day in which to do so.

Even on this first visit we found a few scattered handaxes in different areas, and we thought we were probably in the same locality Hobley had described. Later, whenever possible, we made further day trips to Ologesailie. On one occasion, when we were accompanied by Mary Davidson, Feruccio Menengetti, and two of our African staff, we were supremely lucky.

We had stopped at a place about a mile off the road to Magadi, forty-two miles out of Nairobi. Having left the car under a tree for the day, we carried food and water with us and moved off on a series of quick traverses, as far as possible, keeping parallel with each other and in touch by occasional shouts. Suddenly, at almost exactly the same moment, Mary, Menengetti, and I each found exposures with quantities of handaxes and some fossil bones. Mary's was the most prolific site and she kept shouting to me to come over and see it. I, on the other hand, had found a site not nearly as rich as hers, but with plenty of fossils and some handaxes, and was calling her to come over to me! Meanwhile, in the area between us, we heard Menengetti calling excitedly to both of us that he had found handaxes.

I abandoned my site, having first tied a handkerchief to a thornbush in the middle of it, so that I could relocate it later on, and went across to Mary. When I saw her site I could scarcely believe my eyes. In an area of about fifty by sixty feet there were literally hundreds upon hundreds of perfect, very large hand-

axes and cleavers, as well as a few flakes and some bolas stones (round stone balls). Nearly all the specimens we found at this site can still be seen today, in the same position as when they were first discovered. We did not disturb them in any way at all, and eventually, in 1947, when the site was opened to the public as a museum-on-the-spot, we built a catwalk high above the exposure from which visitors could look down at and photograph the specimens without treading on them or handling them.

Menengetti's site was about fifty yards south of Mary's and yielded several hundred much smaller handaxes eroding from a different level in the deposits. At this spot there were practically no cleavers and not a single bolas stone.

My site was farther away towards the south and had rather fewer handaxes than either of the other two, but many more fossil bones and teeth. It was a memorable day. We were unable to stay very long because we had to get back to Nairobi, where Jonathan's baby-sitter was expecting us by five o'clock. We knew, however, that we had found a site of very great importance and one that would require prolonged investigations in the future. We occupied the time on the drive home that afternoon planning just how and when we were going to be able to work it satisfactorily.

Mary, by this time, had nearly finished her part of the report on the Njoro River Rock Shelter, although I had still not completed my part, dealing with the skulls and skeletons. With Jonathan on her hands (he was then about eighteen months old), Mary had not been called up by "Manpower" for any specialized war work. Consequently, she was able to do more or less what she wished.

We decided that the new Olorgesailie site was of such importance that the sooner we began detailed work on it, the better. We therefore purchased the necessary equipment and set up a tented camp by the edge of a small gully under some thorn trees, close to the richest of the sites, the one Mary had found.

Several of our older African employees, who had worked with me since 1926, were not engaged in war duties, and we sent for them to make up a team to work with Mary at Olorgesailie.

Mary had a big tent as a combined living room and workroom

and a smaller one as a bedroom for herself and Jonathan. She also had a tent for Jonathan's African *ayah*, or nurse, whose duties included washing the nappies and clothes. There was another tent for the houseboy and also one that served as a kitchen and scullery, plus two others for the male African members of the party.

At that time, I was busy with administrative work at the museum most evenings, but whenever it was possible, even if it meant leaving Nairobi late in the evening and returning early the next morning, I rushed to the camp to see how things were going. I also went down on all my free weekends.

The biggest problem at Olorgesailie was that of getting water, but eventually we were lucky enough to make an arrangement with an extremely kind and pleasant road foreman, who was at the time responsible to the Imperial Chemical Industries for the upkeep of the road to Lake Magadi, where the company ran a huge plant for producing soda. This man not only dropped off a few forty-gallon drums of drinking water once a week, as he passed our camp, but also acted as postman between Mary and me. He had to go back and forth two or three times a week, so the arrangement worked perfectly, especially since the ICI directors were kind enough to authorize him to give us every possible assistance in maintaining our camp.

Scientifically, from the very beginning the site proved to be exciting indeed. There were more than ten distinct "camp sites" of Acheulean man at different levels within a sequence of ancient lake deposits exposed by modern erosion. At the time we were working, the area was semiarid, and there was a dry watercourse through which floodwaters raced occasionally when there had been a thunderstorm near Mount Laisugut, about twenty-seven miles away, or when a local downpour occurred. The deposits we were working had been formed in a series of ancient lakes, by the side of which the makers of the various stages of the handaxe culture had lived in the dim past. Subsequently, these deposits had been exposed by the forces of erosion, which had cut back the lake beds, forming cliff faces. Frequently, stone tools and fossil bones could be seen projecting from these cliffs at different levels. The sequence as a whole consisted of shallow water deposits, beaches, and swamp beds, as well as a few deep-water strata. At intervals there were old

land surfaces; it was on these that the artifacts and fossils occurred.

The site was in Masai country, and in the dry season the area was uninhabited by either cattle or wild animals because of the lack of surface water. When rain fell the scene changed. Grass sprang up, floodwaters raced down the watercourse, leaving rock pools in the floor of the stream bed, and the Masai moved in with their cattle, goats, and sheep to make use of the available grazing while there was still enough water. Similarly, zebra, gerenuk (a long-necked antelope of desert country), oryx, eland, and a few gazelle, as well as rhino and lion, occupied the area at such periods. One pride of five lions was much in evidence for part of the time Mary was in camp.

There was one memorable occasion when she heard lions roaring near the camp several times during the night and the dogs were very restless. (At that time she had with her our four Dalmatians, one of which was a long-haired bitch, a throwback to a type that existed several hundred years ago, before Dalmatians became carriage dogs and while they were still harriers. This little bitch, Sally, was the leader of the pack.) In the morning, as soon as the dogs were let out of the tent, Sally's hair bristled, and she led the pack, barking and growling furiously, to the edge of a small, dry gully not far from Mary's tent. When Mary followed to see what had attracted the dogs' attention, she found herself gazing down at five lions, who had apparently decided to spend the rest of the day sleeping there—less than a hundred yards from her camp! The dogs were called back immediately and had to be kept away from the gully for the rest of the day, but the lions seemed scarcely to notice the intrusion, and the work went on as usual.

Scorpions were common and troublesome, and members of our staff were stung and temporarily incapacitated on several occasions. We encountered snakes from time to time too, but most of them were harmless. Two or three times, however, when the tents were being turned out on Sunday morning (cleaning day), cobras were found curled up under a bed or beneath a ground sheet. But no one was ever harmed by them.

One Sunday morning, when I was at the camp for the weekend, a rather angry-looking rhinoceros strolled up from the stream, apparently with the intention of spending the rest of the

day under our thorn trees. The staff all banged empty tins and shouted, and the rhino turned and went off in disgust with its tail held high in the air, after the manner of the wart hog—a clear sign of rhino annoyance. We could not help feeling a little sorry for it, since, quite clearly, the shady trees under which we had pitched our tents represented one of the places the rhino counted on for an occasional siesta.

When there was any water in the water holes along the stream bed and the Masai were therefore around grazing their herds, they frequently came into camp in search of medicine and other help. From time to time we would show the elders the stone handaxes we had discovered, but any reference to their extreme age produced a most skeptical reaction. The Masai were willing to admit that some of the handaxes looked rather like spearheads and some of the cleavers resembled axe heads, and that, therefore, some of them must have been made by man—but only, they thought, a few hundred years ago. They showed little or no interest in the fossil bones. While they did concede that they were not ordinary stones, they still maintained that they could not be very old.

It was only after Mary discovered and completely excavated the skull of an extinct hippopotamus that the Masai began to accept that there must be some truth in what we were telling them. They were clear in their own minds that hippopotami lived only in big rivers or lakes and never in such dry country as Olorgesailie. The presence of the hippopotamus skull, with its typical tusks, made them realize that the sites we were excavating, as well as the stone tools and the fossils, belonged to the long, long, long past—*zamani sana*.

After Mary had been working for a while, it became obvious that the site was one of such magnitude, and with so many different living floors, or camp sites, at different levels, that it would be necessary to work it on a much bigger scale than was possible at the time. Menengetti suggested at this stage that if I really needed a team to work there, I should canvass the prisoner-of-war camps for students and lecturers who had worked in Italy on archaeological sites. He felt sure that such men would be delighted to work at Olorgesailie on parole, under our supervision. Consequently, I went to see the director of the prisoner-of-war operation. He readily agreed to find out if there

were any volunteers in the prisoner-of-war camps who would be suitable for work at the Olorgesailie prehistoric site.

Our first applicant was a man of about thirty named della Giustina, who, before being conscripted into the Italian army, had worked on a Neolithic excavation near Rome. When I engaged him, he helped me get together a team of nine other men, and I made him the foreman.

The POW authorities provided two portable huts for the men to sleep in, and I had a thatched hut built as their living and kitchen quarters. Weekly rations were sent down for them by the authorities, but we were responsible for providing them with water. As it turned out, their camp was a great deal better equipped than ours was, and they were really quite comfortable.

The plan worked out very well indeed, both for ourselves and for the Italians. They had a job they enjoyed, and it was much more pleasant for them to live at Olorgesailie than in a prisoner-of-war camp, behind barbed wire. We, on our part, had an excellent team to help our few Africans, under Mary's over-all supervision. The men had strict instructions to send a message to us through the chemical company's foreman, who still delivered water to the camp twice a week, if any major development took place while neither Mary nor I was there.

As the importance of the site became more and more apparent, I entered into negotiations with the government for the area to be set aside as a special scientific reserve. We then decided to fence it in, for two reasons. On the one hand, there was the danger that either wild or domestic animals might fall into our trenches and injure themselves. On the other, there was the fear that large animals, like elephant, rhino, and giraffe, would trample over the excavations during the night and damage the specimens, particularly on the living sites we were excavating. (Actually, elephant came through the area only once, but rhino and giraffe were common.) There was also the possibility that herds of cattle, moving in haste across the plains towards the stream bed when it held water, would dash over the sites, and crush and destroy the handaxes and fossils.

The provincial commissioner at Ngong, the headquarters of Masai Province, acting on behalf of the government, authorized me to call a meeting of Masai elders at Olorgesailie, at which he would be present to represent the government while I made a

formal request to the Masai to allow me to fence in an area of about three quarters of a mile by half a mile.

The meeting was duly held, and authority was given us by the elders to put up a fence consisting of two electrified strands of wire, with a thorn fence around the outside. The effect of the twelve-volt electrified fence would be such that any animal touching the two wires simultaneously would get a slight electric shock, which, while not damaging it, would give it a sufficient fright to make it run away. One of our Italian prisoners-of-war was an electrician by training, and he was instructed to install the electric fence, while the other men cut down thorn-bushes to form the outer barricade.

The electric fence was completed long before the thorn fence, and when it was almost ready I summoned the local Masai to come with their wives and families so that I could explain how, once it was switched on, the two wires, when touched simultaneously, would give any intruder a shock that would be *kali sana*—"very fierce." I explained further that there was going to be a thorn fence around the electrified one, so that, in the ordinary way, people—especially the children—would not be in any danger of touching it. The Masai elders looked with awe at the complexities of this strange invention, as did the women and children, but one young warrior was quite certain that I was bluffing. In the middle of the proceedings, he walked up to the wire fence after I had switched on the batteries. While he was preparing to examine it, quite by accident he leaned his spear against the two wires. Instantly, he received a sharp electric shock that made him extremely frightened. Dropping his spear as if it were a red-hot poker, he took off across the plains shouting to the people, who were watching and laughing, that "the wire made my own spear bite me!" A more perfect, and entirely unplanned, demonstration of the efficacy of the wire fence could not have been devised.

We found later that the fence kept our area clear of most animals. Even a rhinoceros would turn and bolt if it touched the fence with either its horns or forelegs. The only animal that, on occasion, was not deterred was the giraffe. If one of its front legs came into contact with the wires, its normal reaction was to swing round through 180 degrees and kick violently with its back legs until it broke the wires and disconnected the whole

system! Otherwise, our electric fence served its purpose extremely well.

The Olorgesailie excavations continued under our direction until 1948. As will be described in more detail later, in 1947 the site was opened to the public as a museum-on-the-spot by the then Governor of Kenya, Sir Gilbert Rennie, on the occasion of the first Pan-African Congress of Prehistory. Since then, the site has become known as the richest and most significant in the whole world of the Acheulean handaxe culture.

One of the most interesting results of our excavations concerned the fossil fauna. On one of the living floors we found the remains of more than one hundred gigantic baboons of the genus known as *Simopithecus*. This extinct baboon was larger than any other member of the family that has yet been found, and must have been about twice as massive as a very large gelada, the biggest living baboon, judging not only by its jaw but also by its limb bones. These creatures, therefore, must have been dangerous and, one would have thought, difficult for Stone Age man to hunt and kill successfully. At Olorgesailie, however, as I have said, we found many round stone balls, or bolas stones, and it is highly probable that it was by means of the bolas that Acheulean man was able to capture and kill the giant baboon.

The bolas is a very ingenious hunting weapon. It is made and used in the following manner: Two or more balls—usually of stone, but sometimes of ivory—are each enclosed in rawhide and then joined together with thongs. The heaviest ball is attached to the longest thong and the lightest to the shortest. This contraption is whirled round the head and then let fly at the legs of a running animal or the wings of a bird in flight. Because the balls are of different weights and the thongs of different lengths, the latter wind round the legs or wings of the hunted creature at different speeds and become tangled. The animal or bird is thereby brought helplessly to the ground and can be dispatched at leisure. This type of weapon is still employed by the Patagonians on the pampas, by Argentine cowboys to bring down steers, and by some of the Eskimo tribes to trap geese and ptarmigans in the subarctic regions. How such a clever device came to be invented several hundred thousands of years ago by Acheulean man is not known.

I personally tried an experiment with a bolas on one occa-

sion, but was forced to give up after I nearly killed myself. If one does not release the thongs whirling around one's head at exactly the right moment, the result can be a blow on the head with one of the heavy balls. Obviously, practice makes perfect, because I am told that Patagonians use these contraptions from horseback!

There are two principal reasons for believing that the round stone balls found at Olorgesailie and other handaxe sites were used 200,000 or 300,000 years ago as hunting weapons. In the first place, although specimens frequently occur on the ancient living floors singly or in pairs, we found them on several separate occasions lying in sets of three. It looked as though a prehistoric hunter had put his bolas down after returning from a hunt and, for some reason, had not retrieved it. Eventually, the rawhide disintegrated, leaving the three balls lying in close association, as a set. In each of the cases when we found sets of three together, each ball of a set was of different weight, exactly as in modern bolas. Single bolas stones occur at many handaxe sites, but we found sets of three only at the handaxe site at Kariandusi and at certain places in Bed IV at Olduvai.

The second reason for my belief that the carefully made, heavy, round stone balls found at Olorgesailie must have been used for something like a bolas is that one cannot imagine a Stone Age hunter spending long hours making an artificial ball of stone merely to hurl it as a single missile. It could be argued that it is easier to aim a well-rounded sphere than a jagged lump of stone, but against this is the fact that if thrown at an animal in long grass or desert bush, a single rounded stone could be recovered only with difficulty and would hardly be worth the many hours spent in shaping it. When used as a bolas with thongs attached, the stones are almost always recoverable and can be used over and over again.

There is one other possible explanation for the rounded spheres of stone—namely, that they were used as clubheads. In my childhood days in Kenya, several tribes employed such rounded stones to make clubheads. The method was to take a strong one-half-to-three-quarter-inch-thick sapling from a hardwood tree and cut it down to about three feet long. Then, about eight to ten inches from the top, a light but very strong rawhide collar was attached and allowed to dry, whereupon it shrank,

providing a very firm ring at that point. The top end of the sapling was then split into four parts and a stone ball inserted between the sections. The tips of the four sections were bound together and secured with another rawhide collar. After this, the head of the club was encased in a rawhide bag and allowed to dry. When I was young, I used to help my Wanderobo friend Joshua Muhia make such clubs more than once. But the rounded spheres we used were found, not made, by us.

During 1942, my intelligence work took me, on a number of occasions, into the Northern Frontier District of Kenya, and it was most tantalizing to see what looked like prehistoric sites of high potential and not be able to investigate them. All I could do was mark their exact positions on a map and hope to examine them at some later date. When the war was over I revisited one of these sites—beyond Mount Marsabit—and found it to be rich in early Pleistocene fossils. The site is in an area with limited water supplies and the terrain is very rough, so that it would be an expensive one to work. Most of the other sites I located in the Northern Frontier District in the latter part of 1942 and in 1943 are still uninvestigated.

The year 1942 ended with Mary, Jonathan, and me, together with our team of Italian prisoners-of-war and our African staff, spending Christmas at Ologesailie. We were accompanied by Mr. and Mrs. Hugh Hindmarsh, who were very interested in prehistory, and their children.

Thirteen

Just as, early in 1941, we used a period of leave from war duties to make a quick visit to Olduvai Gorge, so in 1943 we used some much-needed leave from my work with the CID to make a trip to Rusinga Island and undertake further exploration of the Lower Miocene deposits there.

Our leave coincided with the school holidays, and Mary Davidson, who was becoming more and more interested in the study of man's past, asked if she could come with us—a suggestion we welcomed.

As part of the preliminary arrangements, I sent Heselon to the district commissioner in Kisii to obtain permission for us to occupy what was known on the island as "the chief's camp" during our stay. This was a necessary precaution, since if the commissioner himself, or any of his juniors, were planning to be there at the same time we were, it would have been necessary for us to take tents and full camping equipment. If permission was granted, Heselon was then to proceed to Rusinga Island to find out whether the camp was in a suitable condition for our needs.

Heselon returned with the news that the two main *bandas*—or grass-roofed huts—had recently been rethatched and that the district commissioner was happy for us to use them. The information concerning the rethatching of the huts was most welcome, since it meant that they would be reasonably waterproof. This was very important, because Lake Victoria has its own convection precipitation system and there is seldom fewer than one thunderstorm a week, and often two or three.

As everything seemed to be working out well for our visit to Rusinga, we went ahead with our plans and drove to Kisumu. The next problem was how to get ourselves to the island, some forty-eight miles distant at the mouth of the Kavirondo Gulf, and back again when our leave was over.

On several previous occasions, we had been fortunate enough to be taken out by motor launch by a Mr. Death (pronounced "death") of the Fisheries Service. He had dropped us off at Rusinga Island, gone on his rounds inspecting the fishing camps, and then called back for us on his return journey. This time, however, Mr. Death and his launch were not available, nor were we able to hire one of the many Asian-owned motorboats normally based in Kisumu. These are used to collect the catch of the African fishermen and bring it to Kisumu, where it is shipped by rail, in specially refrigerated containers, to the Nairobi market.

Heselon had traveled by bus to Homa Bay, via Kisii, and then to Rusinga Island by canoe, returning via Kisumu on an Arab-owned dhow. These sailing vessels, some forty-five feet in length, are used to transport freight to and from the small ports up and down the shores of Lake Victoria, from Kisumu as far south as Mwanza.

able to tell him that as soon as he had received his discharge from the Air Force and returned from England (where he was to be married), we should be happy for him to take up the position of museum ornithologist.

In the early postwar years passengers traveling by air from Nairobi to London went by seaplane, which took off from Lake Naivasha, landed on the Nile at Khartoum, again at Cairo and Sicily, and then flew via Marseilles to Southampton. When the time came for me to leave, the museum trustees provided me with a one-way ticket by seaplane to England and sufficient funds to return by ship with my family.

The flight was uneventful until we reached Egypt, where the authorities, to my horror, informed me that my yellow-fever certificate, which was only a fortnight old, was not in order. Their regulations demanded that I should have been inoculated six weeks before arriving in Egypt. They were adamant, and removed me and my luggage from the plane. They then took me to a camp outside Cairo, where I was locked behind barbed wire for twenty-four hours. Fortunately, before their plane left Cairo some of my fellow passengers telephoned the British Embassy to explain my plight. Next morning the British authorities communicated with the Egyptian immigration office, and I was released and brought back to the airport. A new problem then arose.

All flights at that time were, of course, heavily booked, since there were so many people waiting to return to England after the war, and I was unable to get a seat. I was advised, therefore, to go to a hotel and wait until I was informed by the authorities at the airport that there was a plane seat available. This did not suit me at all, and I decided to stay at the airport and hope for the best.

It was a good thing that I did so—in fact, the result was a very good example of what is so often described by my colleagues as "Leakey's luck." Shortly after I began my vigil a plane landed in Cairo on its way to England from India. As one of the passengers came down the airplane steps for the brief stopover, she had the great misfortune to slip and break her ankle, and had to be taken to the hospital. From my point of view, it was most fortuitous, since I was promptly allowed to take her empty

seat. Thus I got passage to England in time to have Christmas with my family.

Fifteen

Most of my time in England was spent in making preliminary plans for the Pan-African Congress of Prehistory, to be held in Nairobi sometime in 1947. In particular, it was vital to fix a date that would be acceptable to the greatest number of those concerned. I had long consultations with some of my English colleagues, including Sir Wilfrid Le Gros Clark at Oxford, Kenneth Oakley and Gertrude Caton-Thompson in London, and Miles Birkitt at Cambridge.

I also went over to Paris for discussions with the Abbé Henri Breuil and Professor Camille Arambourg. The Abbé Breuil, the leading world prehistorian of the time, had spent the greater part of the war period in South Africa, at the invitation of General Jan Smuts and Professor C. van Riet Lowe. As a result, he was not on very good terms with the French scientists who stayed behind in Paris when the Germans overran France. I found that others of my colleagues were also being cold-shouldered because it was thought they had collaborated with the enemy. Consequently, Paris at that time as a center of prehistoric study was very tense indeed.

In spite of the strained atmosphere, however, I was determined to persuade at least a few of the French prehistorians to attend the forthcoming congress in Nairobi. It was, in my view, unthinkable that we should hold a congress of prehistory anywhere—let alone in Africa—without the participation of French prehistorians and geologists. It was, after all, to the French that the world owed the origin of the science of prehistory, and they had also done a great deal of pioneer work in Africa, along the northern coast. Besides this, I wanted the Abbé Breuil to be the first president of the congress. In addition, since France's North African possessions ranked as provinces and any decisions affecting them could be made only in the capital, my task was to

persuade the French government in Paris to arrange for the North African territories to be represented in Nairobi.

I made it quite clear to those colleagues whom I contacted in both England and France that although the congress would be mainly concerned with prehistory, we would not confine ourselves to the Pleistocene (that is, the chapter of the earth's history immediately preceding the present), but would consider the earlier Pliocene and Miocene periods as well. This was necessary because most of the South African prehistorians believed that the famous *Australopithecus* specimens from Taung and Sterkfontein were of Pliocene age. I, on my part, was determined that our *Proconsul* material from the Miocene deposits in Rusinga should be considered as a possible link in the evolutionary story of man in Africa.

In 1946, the generally accepted view of most anatomists and zoologists was that the South African australopithecines were simply a local variant of an apelike creature similar to the gorillas and chimpanzees, and were in no way directly related to the family of man, the *Hominidae*. But I knew that Raymond Dart, Robert Broom, John Robinson, C. van Riet Lowe, and other likely delegates from South Africa were determined to show that the australopithecines were closely related to man and far removed from the apes, a view with which I concurred.

It was, therefore, with the greatest pleasure that I learned from Sir Wilfrid Le Gros Clark that he was planning to visit Johannesburg and Pretoria before the Nairobi congress to see the original australopithecine material for himself. He ranked, unquestionably, as the leading physical anthropologist of the day, and it was of the utmost importance that he should see the actual specimens and draw his conclusions from them—not, as previously, from casts—before he discussed their affinities at the congress.

One of the problems arising from the early date we chose for the congress—January 1947—was that of raising the necessary funds. The East African governments had promised to provide for local expenditures, but we had to raise additional monies from the European countries to make it possible to invite the overseas delegates. In many cases, the governments concerned gave us direct grants, and General Smuts, Prime Minister of South Africa, even made a military airplane available, to trans-

port not only the South African delegates but also those from Northern and Southern Rhodesia and from the Portuguese territories of Angola and Mozambique.

General Smuts had been interested in botany from an early age and later became a good amateur prehistorian, under the guidance of van Riet Lowe. He also gave vital support to Dart and his colleagues in their search for early hominids in South Africa. He then became interested in human evolution generally, and when he heard of the congress in Nairobi he arranged for the South African delegation to bring with them an invitation for the next, to be held in the Union of South Africa.

I realized, at an early stage in the preparations for the congress, that there would be major difficulties in regard to accommodation and transport during the excursions we planned for the delegates both before and after the meetings in Nairobi. For instance, I wanted to show the visiting scientists some of the important prehistoric sites in Kenya, such as Kariandusi, Gamble's Cave, Hyrax Hill, and the Njoro River Rock Shelter, which would involve their staying two nights in the Nakuru area. This meant finding local residents who would be willing to accept two or three scientists each as overnight guests, since hotel accommodations in Nakuru at that time were wholly inadequate to meet an influx of some eighty to ninety people.

Fortunately, a good many farmers in the Nakuru district had become interested in prehistory when I was working at Gamble's Cave and Bromhead's site—both at Elmenteita—and also when Mary was working at Hyrax Hill. Many of them now rallied to my aid and, among them, they promised to accommodate all the delegates in private homes during the time they were in the district. I also had to arrange for meals for the delegates and their escorts during the excursions.

Another problem that had to be settled well in advance was that of the location for the meetings in Nairobi. We required a large hall for public sessions and a number of smaller rooms for offices and where committees could deliberate without disturbance. Fortunately, the Nairobi Municipal Council agreed to put their main debating chamber at our disposal for the duration of the congress, and they also offered us a number of other rooms to use as we liked. I was grateful indeed for this help, which was largely provided because the mayor of Nairobi at the time

was also a member of the museum board of trustees and helped me in the negotiations.

In Nairobi itself, I planned to use the accommodations available at the three biggest hotels, the Norfolk, the New Stanley, and the Avenue, but even so I was unable to book enough rooms in advance and had to call on some of my friends to take in delegates as guests.

The most difficult part of the whole organization was how to get my eighty-one scientists—many of them elderly—to the various sites we planned to visit, particularly Olduvai Gorge and the prehistoric painting areas in the Kondoa Irangi district, both in Tanganyika. So far as Olduvai was concerned, I planned to set up a camp on the rim of the Ngorongoro Crater, adjoining the lodge there (which could then accommodate only about twenty people), and take the group for a day trip to the gorge. I went down to Ngorongoro and booked every room at the lodge for the two days we needed. I told the manager that I would bring tents and bedding for the additional people in our party, but that I would like him to provide food and liquid refreshments for the whole party.

Another important phase of the preliminary work was to ensure that we would be able to hire sufficient tents, beds, bedding, camp chairs, tables, cutlery, and other equipment for the trip to Olduvai and to the rock paintings, as well as enough large, reliable vehicles to transport all the members of the congress and those who were helping to organize it.

The proposed visit to the prehistoric art sites around Kisese was complicated by the fact that there were only footpaths leading from rough tracks to the sites. Especially for the comfort of the elderly scientists, I felt it was essential to have a number of roads made so that such cars as Chevrolet sedans could get as near as possible to those sites we had selected for the visitors to see. I therefore went down on a preliminary safari and was able to arrange with the district commissioner of Kondoa Irangi and with the local chiefs and headmen to have temporary roads cut through the bush a few weeks before we were due to arrive, in time that they would not be overgrown again when we got there.

Mary and I naturally wished to show the congress members

the Ologesailie site, so we planned to hold one of the sessions there, to discuss the handaxe cultures of East Africa. I also wanted our visitors to see at least part of the handaxe site at Kariandusi, near Gilgil. In this connection, I knew that it would be necessary to open an additional trench, since the 1929 excavations had been filled in.

The Kariandusi site was on land belonging to Lady Eleanor Cole, and she and her son, David, and daughter-in-law, Sonia, were most co-operative. We set up a temporary camp for three weeks and extended the excavation, which we had started in 1929, to expose another part of the living floor. In some ways this site was as rich as any of the living floors at Ologesailie, but there was only one level. One of the most interesting features of the excavation lay in the fact that the majority of the handaxes and cleavers found were made of shiny black obsidian. This stone was widely used in Stone Age cultures of a much later period, but I know of only two other sites in the world where it was used for making handaxes.

My friend E. J. Wayland wanted some, at least, of the visiting scientists to see the Nsongezi handaxe site he was then in the process of excavating, but it was possible only to arrange for a visit by the few people who could afford the time prior to the congress.

Similarly, a number of those planning to attend the congress wanted to make an excursion to the important Lower Miocene sites of Rusinga and Songhor, but this too could be organized only as a brief post-congress trip, when the main parties had dispersed. Quite apart from the time factor, we knew we could not possibly take more than four or five visitors at a time to Rusinga because of the difficulty of getting to the island.

While all these preliminary arrangements were being made, my staff in Nairobi was busy overhauling some of the museum exhibits, which had had little attention since the outbreak of war. I wanted our museum to look its best for the many visitors who were coming from internationally known museums elsewhere. Accordingly, John Williams reorganized the bird exhibit; Allen Turner hastily arranged a marine biology exhibit, using the casts of fish and the crustacean material he had been preparing during the last two years of the war; Joy Bally undertook to

arrange a special exhibit of her flower paintings; and Mary and I, assisted by Donald MacInnes, completely reorganized the prehistoric exhibits and those dealing with palaeontology.

Over the years since 1926, I had been steadily acquiring a relatively complete collection of casts of skulls of prehistoric men from all over the world, and by 1945 I probably had the largest single collection of such material. This had been possible because I had exchanged casts of the various Kenya prehistoric skulls from Nakuru, Elmenteita, and elsewhere for those I needed to build up my collection. I explained all this to the museum trustees, and they managed to persuade the Kenya government to give me a grant so that I could order special cases from England in which to exhibit these casts. I was eventually able to have them all on view in time for the congress.

In December 1946 all our energies were concentrated on completing the final arrangements for this first-ever Pan-African Congress of Prehistory. We had recruited a large staff of voluntary helpers. These included Margaret Tait, Catherine Ellis, Sonia Cole, Eileen Bennett, Kay Attwood, and Jean Harries, who, with our museum staff, made an excellent team to run the congress office and help with the excursions. We also recruited Mr. and Mrs. Howard Williams to help run the safari to Olduvai and to the rock paintings. They were to be responsible for the catering and other camp arrangements. As an afterthought, I also engaged a full-time mechanic and a breakdown vehicle to accompany us everywhere and, lastly, a number of good European drivers for the cars.

The individual members of the congress arrived, one by one, over a period of two or three days. The proceedings were then formally opened by the Governor of Kenya, Sir Gilbert Rennie, in a speech of welcome in the big hall of the Municipal Council's building. Before this official opening we had had a number of preliminary meetings on an *ad hoc* basis and had appointed a management committee for the meetings. We had also chosen the Abbé Breuil of France to be nominated as the first president of the congress, with Professors C. van Riet Lowe and Camille Arambourg as vice-presidents. I was designated the organizing general secretary.

As soon as Sir Gilbert Rennie finished his speech, the Abbé Breuil replied suitably on behalf of all the members of the congress, and the Governor departed. We then had a plenary session, at which we officially appointed the president, vice-presidents, chairman, and secretaries of the various sections of the congress. These sections were devoted to geology, palaeontology, and prehistory.

The task of working out in advance the program and order of papers had been very complex. I had tried to arrange things so that there were never two papers of any importance scheduled at the same time, since most of those present were interested in every subject under discussion. Only a few of our members were specialists in just a single field.

On the first day, a small subcommittee was set up to work out a draft constitution for the congress as an international body that would meet once every four years. A small standing committee to manage the affairs of the congress between sessions was also recommended.

After the opening meeting the congress remained in plenary session for a symposium to discuss the South African australopithecines. Dart and Broom first described their discoveries, starting with Dart's juvenile specimen from Taung found in 1924, and ending with the latest finds of skulls and jaws in the Transvaal limestone caves and fissures at Sterkfontein and Kromdraai, near Johannesburg. A general debate then took place, led by Le Gros Clark, who had come back from South Africa fully converted to the idea of the near-human nature of the australopithecines and their ancestral position in man's family tree. Others who spoke included M. R. Drennan, Oakley, and myself.

A discussion on the relationship of glacial episodes in Europe and North America to pluvial periods in Africa led to a hot debate. Some, like Professor F. E. Zeuner, insisted that glacial periods in the Northern Hemisphere coincided with drier conditions in the equatorial zone, while I and my supporters argued that glacials coincided with pluvials, interglacials with interpluvials.

A preliminary discussion of Pleistocene faunas took place next. Arambourg, Dorothea Bate, Oakley, Zeuner, and myself were the main contributors.

In addition to these symposia, numerous brief individual papers were given.

The session of the congress we had arranged for the Olorgesailie prehistoric site was held in the big new *banda* that had been built with the aid of our Italian prisoners-of-war. The Governor of Kenya also attended this session and formally opened the Olorgesailie site as a museum-on-the-spot. After Sir Gilbert made his speech the Abbé Breuil, as president of the congress, stood up to reply. Just as he rose to his feet, the back part of his braces broke, and he had to keep his trousers in position by holding on to them with one hand while he spoke—much to the silent amusement of the assembled scientists seated behind him!

As soon as these preliminaries were over, I gave a talk on the significance of the Olorgesailie site and explained why we had made it into a museum-on-the-spot for the future benefit of visiting tourists. When my paper was over, but before it was discussed, everyone visited the site. This involved a walk of nearly two miles in the heat of the day. Meanwhile, the *banda* was swiftly transformed into a dining room, where cold drinks and an excellent luncheon were laid out. When the meal was over my paper was discussed.

The idea of making an early Palaeolithic site into a museum-on-the-spot, where part of each of a series of prehistoric living floors was preserved just as it had been found, was a new one. The members of the congress were most impressed. The idea caught on quickly, and soon other countries were following our example.

After the excursion to Olorgesailie the congress resumed its sessions in Nairobi. Prehistoric art in South Africa, Rhodesia, North Africa, and Tanganyika was the subject of a major debate, with van Riet Lowe, A. J. H. Goodwin, and Breuil as the major contributors on South African art, while Mrs. E. Goodall from Bulawayo described recently found sites in Southern Rhodesia and Dr. A. Ruhlmann gave an account of some of the more important North African art styles.

A session was devoted to the Mesolithic and Neolithic of Africa, with the South African contingent maintaining that these European terms ought not to be used and suggesting that the term Middle Stone Age should be adopted to refer to cultures

corresponding to those of the Upper Palaeolithic in Europe, Late Stone Age to what would be called Mesolithic and Neolithic elsewhere. Despite this disagreement, the discussion was very valuable, with Anthony Arkell giving us the first information about important new sites in the Sudan and Mary describing her discoveries at Hyrax Hill and the Njoro River Rock Shelter.

Again, many individual papers were read and discussed.

This initial congress was really of an exploratory nature, and one of its most important aspects was the bringing together for the first time of prehistorians, geologists, and palaeontologists whose work was concerned with the African continent. One of the results was the decision I have already mentioned, to hold a similar congress once every four years, and another was the acceptance of General Smuts's invitation for the next one to meet in South Africa. Unfortunately, when the time came this had to be abandoned, because after Smuts's death the new South African government made an unacceptable condition—that nonwhites could not participate. Instead, the second congress was held in Algeria.

The first congress ended with a series of resolutions dealing with the future of prehistory, palaeontology, and Pleistocene geology, together with recommendations to the governments of various African countries that they increase their support of such studies.

As soon as the congress was over, we set off for the first important excursion, to the Nakuru–Naivasha basin, where I had worked from 1926 to 1929 and where Mary had excavated at Hyrax Hill in the late thirties. The sites we visited included Gamble's Cave, Kariandusi, Enderit Drift, Hyrax Hill, and Deighton's Cliff. We also arranged special visits to Lake Nakuru for those who wished to see the bird life there, especially the wonderful spectacle of myriads of flamingos. On the day we visited Gamble's Cave, Mrs. Gamble and her husband most generously provided a magnificent cold buffet at their house for over a hundred people.

After the Nakuru–Naivasha visit the party returned to Nairobi and spent a whole day resting. We knew that the next excursion would be a very tiring one—for some, at least, of the party—since it included visits to the Ngorongoro Crater, Olduvai Gorge, and the prehistoric art sites.

We duly left the next morning and spent the first night at Arusha, where arrangements had been made with the Reverend Hampshire, headmaster of the local school, and his wife for some of the party to be accommodated in the school's dormitories. He also kindly put the school dining room at our disposal for a public lecture that evening by Professor Zeuner.

In the morning we all assembled and set off in convoy for Ngorongoro. Earlier that morning I had sent one vehicle ahead, with instructions to wait for us at the top of the escarpment beyond Mto-wa-Mbu, overlooking Lake Manyara, where there was a wonderful view. Our plan was to have a picnic lunch there before going on to Ngorongoro. When we reached the appointed place, however, there was no sign of the vehicle carrying our lunch. Inquiries from passers-by revealed that it was waiting some seven miles farther on, where there was a similar view of the lake.

After much-needed refreshments we set off again and climbed to the rim of Ngorongoro Crater, reaching it at the point where the interior of the crater is first visible after the ascent. Here we paused so that members of the congress could take photographs of this awe-inspiring view, which has often been called the "Eighth Wonder of the World."

At length we reached the rest camp, and the senior scientists were shown to their sleeping accommodations in charming log cabins, while the rest of us organized ourselves in tents. An impromptu bar was quickly set up in a corner of the lodge dining room. The evening was bitterly cold, and whiskies were very popular!

While our volunteer assistants were helping the scientists get ready for the night, Mary and I joined the Howard Williamses in preparing a picnic lunch to be eaten at Olduvai the next day. I also briefed the drivers of the cars, none of whom had ever been to Olduvai, about the many difficulties they might encounter as they descended from Ngorongoro to the Balbal depression and up along the track on the opposite side. I arranged that one vehicle should precede the convoy; another, driven by MacInnes, should be somewhere in the middle; and the breakdown vehicle was to bring up the rear.

Our first stop at Olduvai the following day was by my old Camp 1, where I myself had first seen the gorge, with its mag-

nificent geological sections, at the Second Fault. We then moved on to the Third Fault and stopped again, but did not attempt the descent from there. After having thus shown the party two general views and explained the geological sections, I led the convoy to a point near the junction of the main and side gorges, at FLK, where Mary and I, with Bell, Kent, and White, had made our camp in 1935. From this point it was an easy walk down to the sites at FLK I and VEK II, so that those of us who knew the gorge were able to lead the scientists on foot to see fossils and stone tools *in situ* in the lower levels. One of the sites we visited on this occasion was a bare hundred yards from the spot where, in 1959, Mary was to discover the *Zinjanthropus* skull.

Since it was still early and the day was likely to get much hotter later, I decided to take the whole party down the precipitous track at the Third Fault to see the lava flow and the deeper sections of the deposits in this area. On the way down, we paused briefly to examine the site where Reck had found a human skeleton in 1913. After viewing the sections in the Third Fault area we walked down the dry riverbed, which runs along the bottom of the gorge, to the Second Fault, where I showed the party the Caspian site underlying Bed V deposits. We found that there were still pools of stagnant water nearby, one in a hollow in the lava above the old waterfall and another beneath Black Rock, a few hundred yards farther down. Most of the party decided that they wanted to bathe, in spite of the fact that the water was somewhat odorous. The women retired to the lower pool, and the men bathed in the top one. A long slow climb up the cliffs at the Second Fault in the heat of the day was rewarded by cold drinks and lunch.

Our second night at the crater camp provided great excitement for those who were sleeping in the tents. At about eleven o'clock in the evening a number of buffalo wandered into camp, knocking against the guy ropes and generally spreading fear among the sleepers. Soon after they left two rhinos ambled into view in the moonlight and discovered the sacks of cabbages, carrots, and cauliflowers that were supposed to provide our vegetable courses for the next two days. The rhinos set about eating them, and almost everything was consumed.

Since it was essential to get the lorries off early next morning

with all the camp equipment, so that the camp at Kisese could be prepared in advance, the people sleeping in the tents were roused early, and they helped to pack everything up. The senior members of the party, who had spent the night in the log cabins, were allowed a more leisurely rising. The view that morning from the rim of the crater was magnificent, and those with cameras photographed it before breakfast.

To ensure that the lorries reached the camp site before we did, we deliberately traveled slowly. When we arrived at the cliff above Lake Manyara we stopped for more photography, and a few of the cars drove down into what is now Manyara Park to see whether they could catch a glimpse of flamingos, pelicans, and perhaps elephants. From there we traveled on past "the pyramids"—a strange natural phenomenon resembling man-made pyramids when seen from a distance—and so on to Kisese camp.

On arrival I learned that one of the three lorries had not turned up. This meant that about twenty-five of our scientists had neither tents nor bedding nor, indeed, any luggage. John Waechter, Desmond Clark, and some of our African staff set off immediately in search of the missing lorry. They found that it had taken a wrong turning near Babati and by the time the mistake was realized had used up so much petrol that it had to return to Babati and refuel. But by eleven o'clock that evening we finally had everyone safely and soundly fed and asleep, in readiness for a heavy schedule the following day.

As soon as breakfast was over, the convoy set out to visit six of the prehistoric art sites in the cliffs between Kisese and Cheke.

Our first stop was at Kisese 1. We had to leave our vehicles a quarter of a mile from this site. The paintings at Kisese 1 are on the sloping face of an immense granite boulder the size of a large house that forms an overhanging but shallow rock shelter. This site was the place where Mary and I first studied the sequence of art styles, and, with Cheke, it still ranks as one of the most important that she and I have studied. The paintings were viewed with great excitement by the French prehistorians because some of the styles recalled those of the Dordogne; the South African archaeologists were mostly impressed by the differences from what they called "Bushman art" in South

Africa and the resemblances to some of the paintings of Southern Rhodesia.

Nearly all the paintings at this and the other sites we visited were in various shades of red. The earlier styles were mostly line drawings, but the later ones were filled in with color.

We omitted a visit to Kisese 2, because of its inaccessibility, and proceeded to Kisese 3 by car. There the local chief had cut a track for our cars to within a hundred yards of the site.

After seeing these paintings we set off once more, this time for the Chungai rest camp, beyond Cheke, where we had arranged to have a break. We were met there by the chief of the area, who told us that his men had managed to cut a track only to within two miles of the base of the cliff at Cheke. This meant a long walk in the heat of the day before clambering 200 feet up a steep cliff. I therefore suggested to the older members of the party, including Robert Broom and Dorothea Bate, that they not attempt to visit this particular site. In spite of my warnings, they were determined to make the effort. I shall never forget the sight of Robert Broom—then almost eighty years old—wearing, as always, a dark suit, wing collar, and butterfly tie, negotiating the last steep stretch in the heat of the day. It was indeed an amazing feat for a man of his age in such unsuitable clothing. Dorothea Bate, though not as old as Broom, was also wearing completely the wrong clothes and made very heavy weather of the ascent.

After examining the paintings at the Cheke site we went leisurely back to the cars and drove to Kisese, where the African staff had heated plenty of water so that members of the party could have a much-needed wash. We celebrated the end of this excellent, but exhausting, day with sundowner drinks.

The next morning we started back to Arusha, where we occupied the same accommodations as on the outward journey.

We were due to leave early the next day for Nairobi, and since we expected this trip to take only about eight hours, one or two of our delegates had planned to fly home from Nairobi late that evening. I had arranged for us to lunch at the picturesque Namanga River Hotel, about seventy miles from Arusha, a very suitable place to break the journey. But as I have said before, plans in Africa seldom work out the way they are intended.

We had gone only a little way past the village of Longido, on

the Kenya-Tanganyika border, when we ran into serious floods. The whole road was under several feet of water, and it was impossible even to wade through, let alone drive the cars across. But the water was subsiding fairly fast, so it was only a question of waiting. Presently, after testing the depth of the water, we decided that it would be possible to drive the vehicles through. Most of the delegates decided they would prefer not to stay in the cars, in case the floodwaters had left potholes that were invisible in the roadway, so they removed their shoes and stockings and waded across. They were led, magnificently, by Robert Broom, who rolled his black trousers up to his knees and strode ahead of everybody. The vehicles crossed safely, and we were able, at length, to drive on again, over wet and muddy roads, to Namanga, where we arrived very late for lunch. Fortunately, the hotel staff had realized that the road was probably flooded and had kept a meal ready for us.

Normally, January is the driest month of the year in Kenya, but the unseasonal floods, not only near Namanga but also right through to Nairobi, made the journey very slow. Around fifty, when we were on the outskirts of the town, there was a sudden cloudburst and one of the cars skidded badly, shaking the occupants quite considerably. Our late arrival meant that those who had planned to catch planes to Europe that evening could not make their flights. It had been a distinctly tiring and trying day for all of us.

The next day was a memorable one for the congress. Bernard Fagg, from the museum of Jos in Nigeria, was one of the delegates. His wife, Mary (the Mary Davidson who had worked with us at Hyrax Hill and the Njoro River Rock Shelter), had been staying with her parents in Nairobi for a few months; she was expecting her first baby. Throughout the congress we had all hoped that the baby would arrive in time for it to be christened "the first congress baby." Bernard was a Catholic, and we had planned that if the baby was born in time it should be baptized by the president of the congress, the Abbé Breuil.

When we reached Nairobi that evening we heard that Mary had had her baby. Plans were made immediately for the baptism to take place the next morning. Since the Abbé Breuil had not officiated at any baptism for many years, he requested that another priest help him in the ceremony, which was to take

place at Mary's bedside. Accordingly, we arranged for one of the priests from the cathedral to assist, and the few Catholic members of the congress were also present. My Mary, who was brought up as a Catholic, stood in as godfather, since there was a shortage of Catholic males at the congress. It is interesting to note that Angela Fagg, our first Pan-African Congress baby, has since qualified as a prehistorian in her own right.

The congress was now officially over, but a few delegates remained behind.

Mary and I had promised to take Dorothea Bate, Kenneth Oakley, and John Waechter to Rusinga Island when the congress was over. A Mr. Day (who had taken over the fisheries at Kisumu from Mr. Death) had agreed to take us out in his motorboat and stay with us for the three days we planned to be there. In this way we could use his boat to reach various points around the island, and save Dorothea and Kenneth from having to walk too great a distance.

We left Nairobi for Kisumu by car, taking beds, bedding, and food, boarded Day's boat in the harbor, and went over to Rusinga Island, where we settled into the chief's camp before dark. Next morning we took the launch and visited sites along the north side of the island, especially those near Hiwegi Hill, such as R I, R IA, RA I, and R III. We had lunch on the launch, returned to camp past the narrows, and anchored facing the mainland. In the afternoon we walked up the long slopes towards Lunene to visit the Kulu-Waregu fishbeds before returning to camp.

The following day we again went out in the launch, to the far side of the island, to visit the sites at Kathwanga and Kiahera Hill. Late that afternoon, while we were still on Kiahera Hill, Day sent a messenger to find us with a request that we return immediately, since it was getting late and he did not like the idea of circumnavigating the island in darkness. Day did not know the reefs round the island as well as I did, and although I warned him to keep well clear of the headland at Gumba, he went in too close and hit some submerged rocks in the shallow waters. We were completely stuck. The boat began to knock badly, and for a few unhappy moments we thought it would be smashed to smithereens. It was desperately important to get it off the reef as quickly as possible. Those of us who could swim

immediately stripped and slipped overboard into the water to see if we could lift the boat off the rocks before it was holed. Our efforts were in vain; we simply did not have enough manpower. A number of fishermen and other local inhabitants spotted our plight and swam out to help us. Soon there were some thirty naked men and a few women milling round in the water, desperately trying to get the boat afloat. Meanwhile, poor Dorothea Bate, who was very Victorian in her outlook, kept her eyes tightly shut to avoid the sight of the naked men, while Mary periodically assured her that all would be well.

After a time Day announced that he could see no hope of floating the boat off the reef until we had many more helpers; therefore, we would have to wait until morning and ask the chief to assemble a hundred men. Since there was very little food and drinking water on board, we decided that Mary and I should escort Dorothea and Kenneth on foot along the seven weary miles to the camp, while John Waechter stayed with Day and the members of the crew. Perhaps the most difficult maneuver was that involved in getting Dorothea off the boat and ashore. The only men available to carry her were stark-naked, and she simply *had* to open her eyes to climb onto their shoulders. Poor Dorothea—she was absolutely covered with confusion and embarrassment! However, we got her ashore in spite of her modesty. The locals very kindly lent us some lanterns, and two of them volunteered to guide us along the tortuous pathways to our camp on the other side of the island. Both Dorothea and Kenneth developed terrible blisters on that walk, but otherwise all was well.

Next morning, with the help of a large number of men recruited by the chief, the boat was finally floated off the rocks, and we were relieved to discover that no serious damage had been done to the hull. John Waechter and Day had spent a sleepless night on board expecting that at any moment the boat would break up.

The First Pan-African Congress of Prehistory was a great success. It resulted in a general feeling that Darwin's prophecy that Africa would prove to be the birthplace of mankind was correct. In particular, Le Gros Clark, as the leading anatomist at the congress, made a major contribution to this end. Since he had just come from South Africa, where he had seen the

australopithecine specimens at Pretoria and Johannesburg and discussed them with Dart, Broom, and Robinson, he could speak of them with the authority of firsthand knowledge. At the congress he made it abundantly clear that there was no longer any doubt in his mind that these South African manlike fossils were hominid, not pongid (apelike), and that they were more closely related to man than they were to any ape. The lead thus given by Le Gros Clark was speedily followed all over the world. For the first time since their initial discovery in 1924, the australopithecines were accepted as belonging to the *Hominidae*.

Sixteen

Dr. J. Janmart, who represented Angola at the Pan-African Congress in Nairobi, was at the time chief geologist for a big diamond company based on Dundo, in northern Angola. During the previous few years he had become a keen amateur prehistorian and had found many fine stone tools in deposits varying in age from the Middle Pleistocene to recent times. In fact, many of the gravels exposed in the Angola diamond mines were now known to be implementiferous.

The whole of this very rich and widespread diamond field was blanketed by a variable thickness of red wind-blown sands. The sands made it difficult to locate buried gravel deposits that might be exploited except by digging a network of prospecting pits, sometimes to a considerable depth. The deposits underlying the sands and soils were, inevitably, of many ages. Some dated back to the Miocene period and had not been disturbed subsequently. A few were of early Pleistocene age; the majority were attributable to the Middle Pleistocene; a few younger deposits dated to the late Pleistocene and even post-Pleistocene. The youngest gravels of all were in the present-day stream channels, and most had already been exploited for their diamond content.

The vital question facing the diamond company at the time was to find a way to determine with some degree of certainty the age of gravels in test pits. It was particularly important to