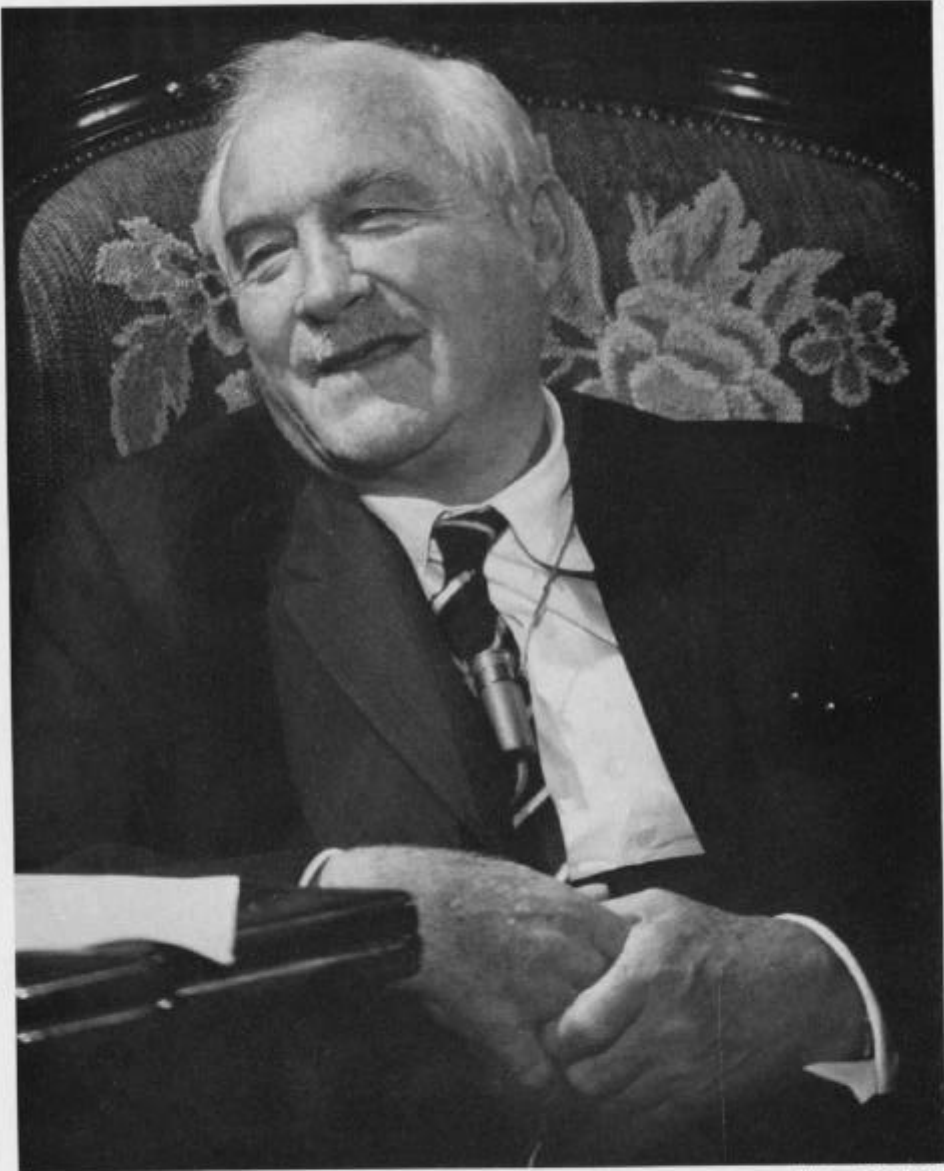


PLATE XXXVI



Photograph by Vic Cox

DR. L. S. B. LEAKEY

LOUIS SEYMOUR BAZETT LEAKEY

1903-1972

Introduction

ONE of the most characteristic memories not a few of us have of Louis Leakey is, dressed in his mechanic's overalls, stretched full length on the floor of an excavation or on an eroded slope somewhere in East Africa, carefully and methodically working with a dental pick at some partially exposed fossil from which, from time to time, he would blow away the loosened deposit, finally exposing the complete specimen. Mary, his wife, would never be far away, engaged, most likely, in some similar occupation, while under an adjacent thornbush, panting from the heat or the exertions of a hunt, lay never less than three or four Dalmatians, the Leakeys' constant companions in the field as in the city. Anyone who had an opportunity to see him at work in the field, to feel something of the triumph with which each new find was received, and to assess with him the significance of these finds, could hardly fail to absorb some of the excitement and infectious enthusiasm for his search for the origins of man and for the causes of our humanity. Besides a great breadth of scientific knowledge and understanding in both palaeo-anthropology and the natural sciences, he possessed the rare ability to treat each enterprise as an adventure that his self-assurance told him would be certain to succeed.

He would walk into a meeting of colleagues or into a lecture room, equipped with yet more and unique discoveries and brimming over with enthusiasm, and his forthright personality would command and hold the attention of all those present. A second characteristic memory we have of Louis Leakey, therefore, is as an outstanding speaker, lecturing in Europe and America, often to audiences of several thousands of students, colleagues, and the general public. He had the ability to hold the interest of all who heard him and to give to some the help and encouragement that would make them outstanding research workers in their own right. For others, who had the necessary means, it was his conviction and his record of unparalleled successes that persuaded them to provide the financial backing for further search for additional definitive fossil evidence of the ancestry of man.

Louis Leakey is unique in this century for the discoveries he made towards understanding the biological and cultural evolution of man. It is easier to see why he made so great an impression on the scientific world than it is to understand why his work should have generated the overwhelming interest it has received from the layman throughout the world. He was not a great orator but he had the ability to catch the feeling of his audience and to react to it and what he had to say was said simply and convincingly so that all could understand. As one looked at the evidence in the slides with which he illustrated his lectures, each specimen was not just another fragmentary piece in the huge jigsaw puzzle of human evolution, but assumed a real and often exciting new meaning when explained by Louis. That his interpretations did not always receive the acceptance of his colleagues and were shown sometimes to be at fault is, perhaps, not unexpected when one takes into account his provocative personality. However, such criticism detracted nothing either from the discoveries themselves or from our admiration for the discoverer, and they stimulated both colleagues and laymen to probe more searchingly and meaningfully into the foundations for the established principles and beliefs on which understanding of human evolution was based and to turn to other sources of evidence, besides that of the actual fossils or the archaeology, for interpreting the behaviour of the earlier hominids.

His discoveries in the late 1950s and 60s came at a time when a large segment of the Western world, out of sympathy, because of the unrest caused by two world wars, with the established religious tenets of their society, was looking to some other explanation—turning to humanism and like concepts—as a means of understanding man's uniqueness in the animal kingdom. In such circumstances, the regularity with which the numerous new finds were made and announced attracted immediate attention and set off a new interest in palaeo-anthropological research. He had an unremitting faith that East Africa held the key to the ancestry of man and the unique conditions of fossil preservation and the primary-context archaeological sites in the East African Rift Valley and adjacent regions are proving him correct. This belief would have availed him little, however, had it not been for his equally strong perseverance and courage, often in the face of considerable practical difficulties, in returning again and again to the field as he did to Olduvai Gorge convinced that somewhere in that unique series of exposures

and cultural sequence he would find the remains of the tool-makers themselves. Twenty-eight years after he first visited the Gorge, Louis's search was rewarded by Mary's discovery of *Zinjanthropus boisei*. Thereafter, not a year went by without the announcement of the discovery of further hominid fossils.

Louis Leakey was a man of tremendous energy, great conviction, and unusual intellectual ability. His was a sparkling personality that endeared him to the younger generation of palaeo-anthropologists. Always something of an iconoclast, he brought a critical mind to the problems of interpretation and his views were often highly influential in shaping new concepts. There were, however, other times, albeit few, when his critics might accuse him of using 'Nelson's telescope', though one could never be quite sure whether it may not have been as much from perversity and perhaps a certain obstinacy as from any conviction of the correctness of his diagnosis of the evidence, as, for example, on the controversy over the 'early, early man' site at Calico Hills, California, that he took the stand he did.

Leakey was the most amazing and influential of the palaeo-anthropologists of this century and it was in no small part due to the circumstances of his early life in Africa that the success of his remarkable career can be ascribed.

Biography, 1903-1926

Louis Seymour Bazett Leakey was born at Kabete, Kenya, on 7 August 1903, the third of the four children of Harry and Mary Leakey. His parents were missionaries with the Church Missionary Society working among the Kikuyu in one of the more heavily populated parts of the Kenya highlands west of Nairobi and overlooking the Rift Valley where dwelt the Masai with whom the Kikuyu had only recently ceased to fight. The outbreak of the First World War prevented his going back to school in England and, except for two periods of furlough with his family there, the first sixteen years of his life were spent at Kabete. During this period he was taught by a governess and later by his father but he was free to associate with Kikuyu boys of his own age-group and, apart from his mother and sisters, they were his constant companions. It was from them that he first learned to know Africa and, as he said, he was more a Kikuyu than a European. One Kikuyu chief called him 'the black man with a white face because he is more an African than a European and we regard him as one of ourselves'. He learned as one of them the language and customs of

the Kikuyu and this inherent understanding of, and sympathy with, Africans enabled him to know them and the country of his adoption with a rare insight and understanding.

He also acquired a close knowledge of animal and bird behaviour that was always put to maximum use in later life and from his observations and experiments he was an inexhaustible source of knowledge on the subject. I recall in particular two such useful pieces of information with implications for the palaeo-anthropologist: one, that it is possible to stalk close enough to a Thompson's gazelle to capture it with a final dash if you do not show your arms, and the other that the apparently man-made 'pick marks' and hollows scooped in the bank at the side of the road up Ngorongoro caldera were done by elephants with their tusks digging out the mineral earth to eat. Later in his life his house at Langata was always well stocked with animals—genets, hyrax, vervets, and tropical fish for the breeding of which he won several awards. Much of what he learned about birds he obtained from the subsequent world authority, Arthur Loveridge, who had recently come out to Nairobi as the Curator of the East African Natural History Society's museum. It was then also, at the age of thirteen, that he acquired his interest in archaeology and made his first collection of obsidian artifacts round Kabete—almost the first to be found in Kenya. During the war years he was active also in helping with the recruitment of labour for the Volunteer Carrier Corps which had been formed, mostly with missionaries as officers, to carry supplies to the combatant troops.

In 1919, after the war, he returned to England and was sent to school at Weymouth College where he spent the next three years attempting to make up some of the deficiencies that an education in the African bush had left in the knowledge he would need for passing the entrance examination to Cambridge. His time at Weymouth was not a particularly happy one since his independence and comparative freedom in Kenya made it impossible for him to conform to the stereotype of an English public schoolboy, as was expected of him. What he lacked in knowledge of some required subjects, however, he more than made up for in his understanding of people and independence of thought and action.

The problems he faced in getting into Cambridge were not only connected with examinations but, in addition, he had almost no funds. Most boys in his position would have followed the advice of his headmaster to 'try to get into a bank', but

such were his determination and the impression he made at his interview at St. John's that he sat and was awarded a sizarship of £40 and went up to Cambridge in October 1922.

His decision to read for the Modern Languages Tripos and to offer French and Kikuyu begins one of those never-to-be-forgotten stories that have gathered around Louis Leakey. The consternation following the discovery of this unsuspected loophole in the University regulations governing the Tripos can only be guessed at and, indeed, these were subsequently amended, but he was allowed to offer Kikuyu. His second year at John's was interrupted by an accident on the rigger field. A rigger accident to his leg also resulted, in later life, in his having to undergo an operation to the femur which left him more or less lame until his death. In October 1923 he was concussed and the need to take a year away from any studying resulted in his being chosen to accompany W. F. Cutler on a British Museum expedition to collect upper Jurassic dinosaur fossils in the vicinity of Tendaguru Hill in southern Tanganyika. This year in the field proved to be immensely useful to him in his later research for it gave him experience of fossil collecting and preservation and a knowledge of vertebrate anatomy as well as insight into the general running of an expedition and the organization of a camp. While in Tanzania he had two narrow escapes from snakes and other animals and one or two unusual experiences which he explained in terms of his African upbringing. It was on this occasion that he was a witness to the activities of a poltergeist—the spirit of a man who had died away from his village and who returned to his hut to demand the necessary ritual burial by his relatives. On another occasion a clairvoyant described to him the landing of a motor-car at Lindi over fifty miles away—an incident that he considered most unlikely and, therefore, carefully verified because in 1923 there was only some half mile of road in Lindi.

He supported himself at Cambridge and paid for his extra coaching in France by lecturing and by such ingenious means as selling ebony walking-sticks bought in Tanganyika. It was at the end of his second year that there took place the now famous incident of his very nearly finding himself in the position of being his own examiner in Kikuyu and of teaching Kikuyu to the second examiner. He received a First Class in the Modern Languages Tripos as well as a scholarship and, in his third year, read Archaeology and Anthropology in which he similarly gained First Class Honours in May 1926. Here, under

A. C. Haddon, he studied the ethnography of pre-literate peoples and was able to systematize his understanding of Kikuyu society, and under M. C. Burkitt his awakening interest in prehistory received the best training available in the country.

One of his interests was in experimental stone flaking and he paid regular visits to the flint knappers at Brandon to study the basic techniques. This knowledge he put to good effect thus becoming one of the very first prehistorians to study stone working by means of his own experiments. He remained an expert at flaking flint and was always willing to demonstrate the manufacture of a range of stone tools. One of the best attended of his demonstrations was at the meeting of the Third Pan-African Congress in Livingstone in 1955 when he went on to show how to use cleavers and stone knives to skin and dismember a carcass. On this occasion also the depth and extent of his observation in all matters of technology were well shown by his remark that if a stone implement becomes blunt in the course of using it for butchering, it is really the meat fibres sticking to the stone that make it blunt and that by sucking these off the knife can be quickly 'resharpened'! This was but one of many such keen observations that he used to help reach a more meaningful understanding of the scatter of artifacts and associated remains on an occupation site.

Inaccurate or incomplete factual information was often a means of stimulating him to carry out his own research in the interests of finding the truth or expanding understanding. One of his first such pieces of research was 'A new classification of the bow and arrow in Africa', carried out while still an undergraduate and following visits to European museum collections. It was published in 1926 in the *Journal of the Royal Anthropological Institute* and still remains one of the main reference works on this subject.

Early Expeditions

Between 1926 and 1935 Leakey led four highly successful expeditions to East Africa after the first of which he was awarded a Research Fellowship at St. John's and submitted his Ph.D. on the results of the work. Initially research was concentrated in the closed lake basins of Naivasha-Nakuru where he and his associates were able to show the existence of a long cultural sequence that could be interpreted in relation to episodes of climatic fluctuation. In this he was influenced by the work of E. J. Wayland, Director of the Geological Survey in Uganda,

by the meteorologist C. E. P. Brooks, and by Eric Nilsson who was mapping the raised lake levels in the East African lakes. In the Western Rift, Wayland had studied a sequence of several stages of lacustrine and fluviatile sediments that had often been subjected to tectonic movement and were found at varying heights above the existing levels of the lakes. To account for this succession of high and low lake levels he had developed the pluvial/interpluvial hypothesis, which was adopted and expanded by Leakey and his geologist, J. D. Solomon, and was later widely used by prehistorians throughout the continent. It was not until 1956 that the critical studies of the geologists H. B. S. Cooke and R. F. Flint showed the inadequacies of a chronology based on hypothetical climatic interpretations of geological phenomena in what tectonically is the most unstable part of the continent. The abandonment of the 'pluvial hypothesis' gave rise to a number of important studies of sedimentary rock units and volcanics that are the new basis for chronological studies and with which the cultural sequence can be more precisely correlated.

The work of these four early expeditions not only established the nature of the cultural sequence in some detail in Kenya and northern Tanzania, but it showed beyond all doubt the great antiquity of that sequence and the enormous potential for finding fossil animal and hominid material in association with the stone artifacts. His finds came, perhaps, as something of a shock to scholars in England and on the continent where the discoveries of French and other prehistorians since the middle of the previous century carried the implication that most other parts of the world were only peripheral to Europe so far as man's origins were concerned. The report on the work in the Kenya Rift (*The Stone Age Cultures of Kenya Colony*) published in 1931 was, for its time, a model of clarity and speediness in publishing. It has remained a standard reference work for Kenya on the Upper Pleistocene and later industries, in particular receiving confirmation and clarification very recently through further fieldwork by Dr. G. Ll. Isaac. Leakey was one of the first to initiate the practice of studies by teams of investigators which is the general rule today. With the geologist Solomon he established his cultural chronology in the Naivasha-Nakuru basin by the study of certain key sediment sections in the gorge of the Melawa river, at Enderit Drift, Little Gilgil river, and Long's Drift—now historic names in African prehistory—and, in particular, by his excavation at Gamble's Cave where the greater part of the later cultural sequence was preserved and

where he obtained the first evidence, and the only good, stratified, developmental sequence of the Kenya Capsian Industry, as well as burials showing the physical characteristics of the makers. There has subsequently been much speculation over the origins of the Kenya Capsian and whether it is Pleistocene or post-Pleistocene in age. Leakey always maintained that its roots lay in the Upper Pleistocene and, although the sequence at Gamble's Cave itself appears to fall into the early Holocene, confirmation of the existence of a terminal Pleistocene stage is now forthcoming from Glynn Isaac's work in the Long's Drift locality.

In 1929 Leakey and some of the field party drove down from Kenya to Johannesburg for the joint meeting of the British and South African Associations for the Advancement of Science. Here he took an active part in the discussions that formulated the South African prehistoric terminology as well as giving an account of that established in Kenya through his own work. He took several distinguished British scientists back with him to Kenya and showed them the excavation and the finds at Gamble's Cave.

Wherever he went, he made friends with Africans and, if language was a barrier, as it was when he found himself at Abercorn (Mbala) in what is now Zambia, he was never at a loss as to how to establish the best relations by, for example, making string figures which he had learned from Haddon at Cambridge, or by conjuring tricks, with which he used later to regale the children of his friends and, on occasions, his colleagues besides, as I well remember once when some of us met at the house of 'Peter' van Riet Lowe in Johannesburg. He took evident enjoyment in these accomplishments and rumour has it that, early in his career, he was not far from being inducted as a member of the Magicians' Inner Circle.

On his trip to Johannesburg in 1929 he visited known sites and discovered new ones. In particular, he was able to spend some time at Broken Hill (Kabwe) where he studied what was left of the stratigraphy and made collections of fossil fauna from the dumps. These bones he sent back to the British Museum (Natural History) but the boxes were not opened until the mid 1950s when the material was found, packed in the grass of the Broken Hill *dambo*, together with his pencilled identifications and notes. It is pleasing to record that this material was subsequently published by Leakey himself when he carried out a re-examination of the whole faunal assemblage from Broken Hill.

This confirmed him in his impressions that *Homo rhodesiensis* was considerably older than previous assessments had suggested and it is a matter for regret that he did not live to hear of the date of 120,000 years B.P. obtained recently by the amino-acid racemization method.

Leakey's pioneer work on the Rift Valley and Lake Victoria basin laid the foundations for the prehistoric cultural succession in East Africa and served as an important link between those in North and South Africa, showing the continent-wide extent of the Middle Pleistocene Acheulian Industrial Complex and the essentially local or regional nature of the post-Pleistocene industrial patterns. The tectonic troughs and mantles of volcanic dejecta of the East African region are probably unique in the world in respect to the preservation of fossils and Leakey was also able to show what type of man was responsible for most of the later industrial entities and to compare them to evidence from the rest of Africa. These findings he published in 1935 (*The Stone Age Races of Kenya*), having found time to develop, with a colleague, a new machine for drawing human palaeontological material, of which they had published the details in 1930.

When he was not in the field in Kenya, he was back at St. John's supervising undergraduates, lecturing, and writing. Glyn Daniel, who was one of those he supervised, describes him as 'enthusiastic, energetic, exciting, an erratic teacher—always inspiring. We didn't write weekly essays, we just listened to LSBL talk and watched him chipping flints. There was no furniture in his College rooms: we sat on packing cases, listened and sorted flints.' His continual insistence on getting to grips with the material is well emphasized here: his interpretations and inspiration came from a study of the artifacts themselves in their original context, not from second-hand sources in textbooks, and he had picked the one part of the world where the contexts of his finds from the most crucial time period, the Plio-Pleistocene, were largely undisturbed.

The experience gained during his early expeditions enabled Leakey to examine from a new perspective the classic European palaeolithic sequence and 'Adam's Ancestors', published in 1934, was both refreshing and thought-provoking for the questions it raised and the answers it proposed. Two years later he was invited to give the Munro Lectures at Edinburgh University and these were published in *Stone Age Africa*—the first time that anyone had attempted to view as a whole the

African prehistoric field. This was a milestone in its time and probably did more than any other book to focus the interest of prehistorians on the possibilities of research in Africa. It also shows the great breadth of his interests which ranged from one end of the cultural succession to the other and included, besides the artifact assemblages themselves, the fossil evidence of the hominids and of the changing faunas with which they were associated. His insistence on sound stratigraphical sequences confirmed by excavation and the importance of the associated animal fossils for building up a relative chronology may be said to have established the basis for subsequent archaeological research in the continent.

It was probably inevitable that such a critical and outspoken personality should raise some reciprocal and equally valid criticisms, particularly among older associates, and such was the case in regard to the inquiry into the age and associations of the two very significant hominid fossils from Kanam and Kanjera which he found in 1932. Had he had a geologist working with him, as he invariably did later, no problem would have arisen, but lack of funds and other circumstances prevented this and the results of the ensuing field inquiry ran contrary to Leakey's contention that the fossils were of Lower and Middle Pleistocene age respectively. Both have now been eclipsed by later finds, but his claim that the Kanjera skulls represented an early form of *Homo sapiens* has to a great extent been vindicated by the more recent finds from the Kibish Formation in the Lower Omo basin.

Return to Kenya and the Second World War

The circumstances of the investigation of these controversial finds, as well as personality clashes, were some of the reasons behind Leakey's decision to return to Kenya in 1937 where he made a two and a half years' study of the Kikuyu whose social and economic customs, ritual, and beliefs he already knew intimately, having been admitted as an elder of the second grade. This was an impressive and lengthy work and was nearing completion at the outbreak of the Second World War. He never had the opportunity later to return to it until after his retirement from the Directorship of the Centre for Prehistory and Palaeontology in Nairobi in January 1972, when he again took it up to revise for publication and had virtually completed it at the time of his death. It is gratifying to learn that it is being edited for posthumous publication by his sister, Mrs. Gladys Beecher.

Louis continued to work for the advancement of the Kikuyu and other African peoples of Kenya and was an adviser on Kikuyu customs, land tenure, and other matters to the Government of Kenya. His intimate knowledge was of particular value during the emergency at the time of the Mau Mau movement and he published two books (*Mau Mau and the Kikuyu*, 1952, and *Defeating Mau Mau*, 1954) that helped to clarify understanding of the situation and of the means to overcome it. He was asked to write the first of these by Methuens while he was on a brief visit to London at the height of the emergency and, consenting, he took a writing pad with him on the plane and by the time he arrived at Nairobi he had already completed the draft! Although he spoke little about it, there can be no doubt that he must have been under considerable strain and anxiety during the time of the Mau Mau troubles. He acted as interpreter during the trial of Jomo Kenyatta and it says much for both their personalities that they remained the best of friends. The title of his autobiography—*White African*—(1937) seems to show his identification with Africa and his love of Africans and it is in keeping that, following independence and the establishment of the Republic of Kenya in 1963, he became a citizen of that country.

During the Second World War Leakey was put in charge of the African section of Special Branch C.I.D. Headquarters, a post he held until the end of the war. Apart from hearing him lecture on his Olduvai finds in Cambridge in 1937, it was during the war in Nairobi in 1941 that I first met him when he and Mary found time to take me in their ancient Ford pick-up on a quick, very bumpy, but exhilarating and never-to-be-forgotten tour of the classic sites in the Naivasha–Nakuru Rift. He was most assiduous in keeping in close and regular touch with current opinions and rumours in the city and the surrounding country and he would suddenly stop his car and get out at some house or village, whereupon he would be joined by two or three of his Kikuyu friends or associates and, sitting together in the grass, they would spend the next ten minutes or so in animated conversation.

One of Louis's special interests was that of handwriting, a competence he had acquired while studying the authorship of emendations in French medieval manuscripts at Cambridge, and he was recognized as one of the leading handwriting experts.

Also during the war years Jack Trevor, then with Military Intelligence in Nairobi, was a constant visitor at the house and

it was Louis who arranged for Trevor's field trip to look for chimpanzees in Tanzania, a forerunner of the major research programme later carried out so successfully with Louis's help by Jane van Lawick-Goodall.

It was during the war that Leakey was made a Trustee of the Coryndon Museum and, in his spare time, he entered fully into its administration. In 1945 he was appointed full-time Curator and so successful was his reorganization of the museum, that it became one of the foremost research centres in the whole of East Africa as well as one of the finest museums in the continent. The exhibition galleries were completely redesigned and he especially encouraged schools, learned societies, and visiting scholars to make use of its facilities. He moved into the Curator's house adjacent to the museum where, if one was successful enough to fight off the pack of Dalmatians that greeted one at the gate, a friend or colleague was assured of a warmth of welcome for which he and Mary were renowned.

When Louis and Mary were not in the museum, where they would often work late into the night, they were in the field searching for new sites. Mary's excavations at Hyrax Hill near Nakuru and their joint undertaking at Njoro River Cave on the Mau Escarpment greatly extended understanding of the 'Neolithic' in the East African Rift. The physical population that made the 'Stone Bowl Cultures' and that he described, confirmed what Gamble's Cave had previously shown, that peoples exhibiting many physical characteristics of the 'Nilotes' were living there from early in post-Pleistocene times, if not before. The excavation of the burial cave at Njoro was, incidentally, the occasion for another seeming manifestation of a poltergeist.

It was during the war years also that Louis and Mary found the now famous Acheulian site of Olorgesailie where handaxes and cleavers, eroded from the lake beds, lay in extraordinary profusion over the surface. This was, I believe, the first site they excavated to expose the concentration of artifacts as a unit on a single horizon in such a way as to reveal the association between different kinds of artifacts, fauna, and features such as rubble concentrations or butchering places. This application of excavation techniques previously reserved for much more recent archaeological periods revolutionized the study of Palaeolithic culture and behaviour throughout the world. From the work at Olorgesailie it became apparent that the fine-grained lake and stream sediments preserved occupation sites of Acheulian man that had undergone minimal disturbance since the time they

were abandoned. Excavation of similar sites followed, for example of Kariandusi, and other workers applied the same techniques and refined them so that today we possess an understanding of the specific features of an increasing number of earlier Pleistocene primary context sites and a closer appreciation of early hominid behaviour than was ever thought possible before.

The Pan-African Congress

Shortly after the war, Leakey was able to realize his wish to bring together prehistorians working in all parts of the continent—and not only prehistorians but geologists, palaeontologists, and others concerned with the study of Quaternary problems—to exchange information, to establish personal relationships, to effect collaboration, and to call to the attention of the governments concerned the need actively to support and extend the study of Africa's past. It was, therefore, through Leakey's efforts and the support he was given by the Kenya Government and the City Council of Nairobi, that the First Pan-African Congress on Prehistory met in January 1947 in Nairobi. It was attended by most of the leaders in African Quaternary studies—men such as Robert Broom, Raymond Dart, Sir Wilfrid LeGros Clark, Camille Arambourg, Alex du Toit, Sidney Haughton, the Abbe Breuil, 'Peter' van Riet Lowe, John Goodwin, Armand Rulhman, Tony Arkell—and a number of younger men, more recently started in the field, who, like Raymond Mauny, Bernard Fagg, or Basil Cooke, were destined later themselves to make major contributions to Quaternary research and understanding. So successful was the Congress in laying the foundations for friendship, mutual assistance, and collaboration between workers from one end of the continent to the other, that it remains the major instrument for exchange and rapport in Quaternary studies in Africa today. Every four years these relationships are revitalized by a new meeting of the Congress.

Leakey himself took an active part in all but one of the six Congresses that followed, being President of the Third in Livingstone in 1955 and receiving a standing ovation in the plenary session for his discoveries and report on early hominid evolution at the Seventh in Addis Ababa in 1971. The detailed and critical examination that he always gave to the sites visited on the Congress excursions sometimes resulted in the need to modify the established interpretation as, for example, following his discovery of handaxes at Ain Hanech!

The Search for Early Man

As a colleague on some of his earlier expeditions and at the Coryndon Museum, Leakey had a young palaeontologist, Donald McInnes, who was responsible for four important contributions to the British Museum's 'Fossil Mammals of Africa' series. From close association with McInnes Leakey gained much factual knowledge of how to work on fossil mammals and two of his earlier important contributions were, one, on the East African fossil pigs and, the other, on the giant baboon (*Simopithecus*). He also received much help from his friend Dr. Kenneth Oakley at the British Museum (Natural History) when he was there working on faunal collections and on dating his discoveries. Dr. Oakley records that the authorities deemed it incredible that Leakey should ask for permission to work at the museum from 8.30 in the morning instead of the statutory 10.00 in order to get through the immense amount of work involved in the very short time available! He was particularly concerned that too few people were working on the rich collections of fossil mammalian remains from the Miocene sediments on Rusinga Island and adjoining parts of Kavirondo in the Lake Victoria basin. Accordingly, he set out to revisit the island himself and with the financial support provided by Mr. Charles Boise he purchased a boat and he and Mary and their associates carried out several seasons' work at this and other Miocene sites. Especially important was the discovery in 1948 on Rusinga of a nearly complete skull of *Dryopithecus (Proconsul) africanus*. More than twenty million years old, it is the oldest skull of an ape yet known and may well be close to the ancestral form prior to the separation of the pongid and hominid lineages. Over six hundred fossils of Miocene hominoidea have now been recovered from East Africa, mostly by Leakey and his co-workers, as well as a wide spectrum of the associated flora and fauna right down to uniquely preserved insects—caterpillars, beetles, grasshoppers, and even butterflies.

It was during the late 1940s and 50s that Leakey began to turn his attention more to a search for and study of the fossil evidence for man, and less to the cultural evidence of his activities. Although he continued to work on the occupation sites, the responsibility for this side of their joint researches was now largely assumed by Mary while Louis was actively engaged in a study of the fossils themselves at the Olduvai Gorge and other sites. Over the years, Leakey had collected a team of African workers who were not only skilled excavators in the techniques

that he and Mary had pioneered but were also very knowledgeable in the recognition of fossils and it is to their sharp eyes and perceptions that we owe some of the now famous hominid fossils.

Leakey owed not a little of his understanding of and thought on the origins of man to Sir Arthur Keith and Sir Grafton Elliot Smith with whom he had been associated in England, and he believed that the earliest hominid fossils would be found in the Tertiary. At Fort Ternan, in Kavirondo, where he had been encouraged to dig by the owner of the farm, his friend Dr. Fred Wicker, he discovered an East African form of *Ramapithecus*, *R. (Kenyanthropus) wickeri*, which not only confirmed the earlier Indian evidence that this was probably a hominid, but was dated to the late Miocene some twelve to fourteen million years ago. Moreover, a single battered piece of stone adjacent to the smashed bones was for him suggestive evidence that *Ramapithecus* may have been a tool-user.

Further search of other Kavirondo sites, including Rusinga, brought to light other fragments which he believed represented an earlier form of *Ramapithecus (Kenyanthropus)* dating to the Lower Miocene, some six to seven million years or more earlier. Although most palaeontologists would now see these remains as those of a Dryopithecine ape, they serve to point up the difference of opinion existing between the palaeontologists favouring a long chronology for the emergence of the hominid line and the molecular biologists who inclined to a short chronology with the separation of ape and man lineages taking place some time between ten and four million years ago.

Another study he undertook in Kavirondo was at the request of the amateur archaeologist Archdeacon Owen. While Louis studied the later Pleistocene sequence in the red colluvial soils exposed by the many steep erosion gulleys in this region of forest/savanna mosaic, Mary worked on sites yielding a new kind of pottery and later gave us the first knowledge of early Iron Age 'dimple based wares'. Louis's sequence of cultural stages of what has later come to be called the East African Lupemban showed the close behavioural associations that existed between the populations of the Lake Victoria basin and those of Zaïre. The geologist, Jean Janmart, asked his help in unravelling the succession in the diamond-mining area of north-east Angola which he visited early in 1948 with Mary and produced a pioneer work that formed the basis for later studies of Pleistocene climatic and cultural changes in the Zaïre basin.

Olduvai Gorge, 1931-1972

The site with which the name of Louis Leakey will always be coupled is Olduvai Gorge in the eastern part of the Serengeti Plain in northern Tanzania, not far west of the Rift Valley. While still at Cambridge, he had discussed with their discoverer, Hans Reck, the fossils brought back from there by a German expedition immediately before the First World War, and he felt convinced that somewhere in the lacustrine and terrestrial sediments in the three-hundred-foot sections exposed in the Gorge, there waited to be found the tools and living places of early man. Reck accompanied him on his first visit to the Gorge in 1931 but warned him that he would be disappointed because there were no stone implements there. Leakey made a bet with him that he would find some within twenty-four hours of arriving. He won the bet by quickly finding tools of volcanic rock which he showed to Reck who told him that, as a student in Germany, he had been taught that early Stone Age implements were always made of flint!

Reck was invited to accompany the expedition, not only because of his prior geological work at the site in which, incidentally, he had discovered a human burial, but also because of Louis's recognition of the need to establish the stratigraphical sequence and to interpret this as a basis for understanding the behaviour and the stone tool equipment of the hominids. This insistence on expert geological investigation simultaneously with his archaeological excavations characterized all his field-work but he was not always able to put it into effect and, although he was knowledgeable in geological matters from his association with E. J. Wayland and K. P. Oakley, he realized that the only successful way to pursue large-scale programmes of investigation of this kind was through teamwork.

One of the early matters for investigation was whether the skeleton excavated by Reck was contemporary with the bed in which it had been found, or had been buried into it. Wayland from Uganda and others were called in and it was convincingly established that this was an in-burial of Kenya Capsian age. The cause and origin of the 'Red Bed' (Bed III) was a matter of some concern at this time and the bulky correspondence between Leakey, Wayland, and others and the conflicting views expressed show something of the importance attached to the ecological interpretation of the geological sequence.

The results of the earlier expeditions to the Gorge were

collated in the 1951 publication, *Olduvai Gorge*. Although remains of earlier Pleistocene man still eluded him, the impressive Oldowan/Acheulian cultural sequence established by Leakey was, for a year or two, used as a yardstick against which to compare finds in other parts of the continent. This work had, however, been based on collections made mostly from the outcrops rather than on excavation and the way in which such assemblages can obscure the true state of affairs became clear only after Leakey's work at the Gorge from 1959 onwards.

It was on 17 July of that year that Mary made her famous discovery of the skull of *Australopithecus* (*Zinjanthropus*) *boisei* in Bed I, a discovery that was the reward of constant visits to the Gorge during the twenty-eight years since he had first set foot there. This discovery came about as a result of yet another of Louis's techniques, simple enough in itself but not previously adopted by palaeo-anthropologists, namely that of *crawling* over the exposures, minutely examining every inch of the ground for teeth and bone fragments of the hominids. The profusion with which well-preserved, large animal fossils occur at Olduvai and other East African sites and the relative ease with which they can be found and collected helped to obscure the presence there of the small fossil material, including hominid teeth. Once the 'small tooth comb' was applied the Gorge began to produce early Pleistocene hominid remains in relative abundance, to an extent that no other site had done before.

I well remember Louis's and Mary's arriving for the Leopoldville (Kinshasa) Pan-African Congress in August 1959. Louis was sitting in the bus holding on his knees a small square box and, by the expression on his face, it was obvious that he had something momentous to report. Some of us were later able to handle the specimen and discuss the importance of his find in some secrecy prior to the official announcement of the discovery of '*Zinjanthropus*' which extended the known range of the Australopithecines into East Africa and showed them to be contemporaneous with the makers of the Oldowan Industry, if not the makers themselves.

From then on began the intensive study of Olduvai Gorge that has made it the best-known early-man site in the world. With financial help from the National Geographic Society of Washington, Leakey was able to get together a brilliant team of specialists such as had never before collaborated at a single site. Not only is it true to say that Olduvai Gorge is unique in the continuity and length of the record (from 1.89 million to *c.*

200,000 years B.P.), the biological evolution (from *Australopithecus boisei*, *Homo habilis* to *H. erectus*) and the earlier cultural history (from Oldowan to Upper Acheulian), that it preserves, but it is the best understood and dated of any Lower or Middle Pleistocene site. The meticulous excavation of primary-context living sites has provided a remarkable understanding of the changing behavioural patterns; the studies of Leakey himself and his colleagues, P. V. Tobias, M. H. Day, J. Napier, and others have resulted in the development of the hominid phylogeny while R. L. Hay has provided an invaluable insight into the sequence of geological events marking the history of the Olduvai basin and thus thrown light on the palaeo-ecology of the changing preferences in the siting of the hominid camping places. The dating carried out by J. F. Evernden, G. H. Curtis, R. L. Hay, C. S. Gromme, and others by means of the K/Ar, palaeomagnetism, and other methods and the study of the many different faunal species undertaken by, amongst others, P. M. Butler, H. Greenwood, J. J. Jaeger, R. Lavocat, R. F. Ewer, G. Petter, and S. C. Savage, have shown more completely and reliably than before, the composition of the main Lower and Middle Pleistocene faunal zones represented in the Gorge.

Although hominid fossils of equal importance are now being found at the East Rudolph localities by his son Richard Leakey, and camping places and butchery sites dating from 2.6 million years ago are being investigated by his colleague and friend Glynn Isaac, Louis's faith in the potential of Olduvai is fully vindicated for there is no other known site which provides, for this crucial time period, such a long, continuous, and well-dated record in which culture and biological change can be documented with such completeness.

Louis and Mary, their son Jonathan, and their trained African assistants have, between them, given us some forty-eight hominid fossils from Olduvai. These fall into three distinct groups—the robust Australopithecine, a more gracile form more persistently associated with tool-making, which he named *Homo habilis*, and a later, larger-brained, robust form, *Homo erectus*. While some would see an evolutionary development of the hominid line from a gracile Australopithecine (tool-user), through a small-brained form of tool-maker (*H. habilis*) to the larger-brained *H. erectus*, Leakey himself considered it more probable that the *Homo* line had diverged from the Australopithecine some time in the late Pliocene or earliest Pleistocene and he believed it likely that a larger-brained form would one

day be found in geological deposits of that age. Although he was not destined to find this proof himself, nevertheless, it gave him immense pleasure to study the KNM-ER-1470 skull from Koobi Fora at East Rudolph, discovered that summer by his son Richard, which he did just before flying to London in September 1972. This, he believed, fully substantiated his contention that a larger-brained hominid (estimated cranial capacity *c.* 800 cc), distinct from *Australopithecus*, was present in East Africa nearly three million years ago. His death in London on 1 October 1972 deprived palaeo-anthropology of its most lovable, quixotic, and brilliant scholar but he died in the knowledge that his lifetime work was being successfully continued by his wife Mary and his son Richard.

The Centre for Prehistory and Palaeontology

In 1962 Leakey gave up the directorship of the museum and, with funds provided by the Wenner-Gren Foundation for Anthropological Research, New York, and the National Science Foundation, Washington, established the Centre for Prehistory and Palaeontology under the Trustees of the National Museums of Kenya; he remained its Director until his retirement early in 1972. This gave him the opportunity to devote all his energies to the work at Olduvai, Rusinga, Fort Ternan, and elsewhere as well as providing housing for the large number of fossils from these and other sites (Baringo, Omo, East Rudolph, Songhor, Peninj, etc.) and for the archaeological material that some of them have also yielded. In ten years the Centre became a focus for research in East Africa and a base for distinguished palaeo-anthropologists and prehistorians. The Lake Rudolph research teams are based here and the Centre, which houses the most complete collection of East African fossil hominids and fauna, is used by numerous distinguished specialists—Clark Howell, Phillip Tobias, Bryan Patterson, Alan Gentry, Yves Coppens, Basil Cooke, Dick Hooijer, Dick Hay, Glynn Isaac, and Vincent Maglio, to mention only a few.

It is most gratifying to be able to record that, in place of the Centre and to continue and expand its aims and work, there is being established by the Trustees of the National Museums and his son Richard, the Administrative Director, the 'Louis Leakey Memorial Institute for African Prehistory', a worthy tribute to Leakey's great and lasting contribution to palaeo-anthropology.

Primate Behaviour Studies

Leakey's interest in trying to reach a clearer understanding of the behavioural pattern of early man led him to look at that of man's closest relatives, the chimpanzee and gorilla. Finding that little was known about the behaviour of free-ranging groups, he set about finding and training students to undertake such studies. In his choice of those to do the work, he was particularly successful and the chimpanzee studies of Jane van Lawick-Goodall in the Gombe Stream Reserve, Tanzania, and Dian Fossey's studies of the mountain gorilla in Rwanda as well as his own establishment of the National Primate Research Centre at Tigonj outside Nairobi, have added considerably to knowledge of primate behaviour. Louis continued to take the liveliest interest in these primate projects as well as to advise on them and, at the time of his death, he was training two other students, one to work on the lowland gorilla and the other on orangs for he believed that the clue to understanding the behaviour of extinct animal species lay in studying that of their closest living relatives.

His interests were catholic, his knowledge staggering in its range and depth and his influence world wide. A truly international scientist, he had the great ability to inspire people—whether it was scientists from many different disciplines or a general audience several thousand strong. While as a leader of a carefully picked research team he was unsurpassed, it must be admitted that not all those with whom he came into contact found his enthusiasm and almost dogmatic interpretation attractive. He could be extremely intolerant of the views of others, if not even verging on the vindictive at times and, like most of us, he did not like to admit that he had been mistaken. Nor did he easily accept criticism though he minded rebukes and criticisms from the press less, on the whole, than he did those of his colleagues, possibly because he felt that their foundations were second hand and uninformed. When he was challenged by a contemporary with a personality as strong as his own, the continent was hardly large enough to hold them both. This may, perhaps, be why he was generally more successful with the women whom he encouraged and trained than he was with his male associates. For many, however, such shortcomings, if they manifested themselves, were accepted as only what might be expected from one with such a breadth and depth of know-

ledge and understanding of nature and human behaviour, past and present.

He was a fluent, stimulating, and entertaining speaker and his writings were equally exciting. He used to gain both publicity and financial support for his Centre, chiefly by means of the exacting lecture tours in Europe and America that he undertook throughout the 60s and up to his death. These tours were highly successful and the publicity he received made his name and that of Olduvai Gorge household words. There is, however, no doubt that, while they brought him the finance that enabled him to run the Centre, they were strenuous undertakings that must have helped to shorten his life. His enthusiasm was infectious, no matter with whom he made contact, whether through his persuasion of the Emperor of Ethiopia to initiate investigation by international teams of the Plio-Pleistocene sediments in the Ethiopian section of the Rift Valley or as adviser to the research team excavating what may be the oldest occupation site in Eurasia at 'Ubeidiya in the Jordan Rift; in his dealings with undergraduates or with the group of influential business men and their wives in southern California who started the L. S. B. Leakey Foundation for furthering the study of man and his origins.

Leakey's contribution to palaeo-anthropology received worldwide recognition and he was the recipient of many honours and awards.

He was elected a Fellow of the British Academy in 1958. In the same year an honorary D.Sc. degree was conferred upon him by the University of Oxford. He was given an honorary LLD by the University of California in 1963, a D.Sc. by the University of East Africa in 1965, and a further LLD by Guelph University in 1969.

He was awarded the Cuthbert Peek Prize by the Royal Geographical Society of London (1933); the Andrée Medal of the Swedish Geographical Society (1933); the Henry Stopes Memorial Medal of the Geologists' Association, London (1962); the Hubbard Medal of the National Geographic Society, Washington, D.C., jointly with Dr. Mary Leakey (1962); the Richard Hopper Day Memorial Medal of the Academy of Natural Sciences of Philadelphia (1964); the Medal of the Svenska Sällskapet för Antropologi och Geografi (1963); the Royal Medal of the Royal Geographical Society of London (1964); the Viking Fund Medal of the Wenner-Gren Foundation for Anthropological Research, New York (1965); the

Hailie Selassie I Award (1968); the Wellcome Medal of the Royal African Society (1968); the Science Medal, Academy for Biological Sciences, Italy (1968), and, jointly with Dr. Mary Leakey, the Prestwich Medal of the Geological Society of London (1969).

From 1929 to 1934 he was Fellow of St. John's College, Cambridge, and in 1934 he was Jane Ellen Harrison Memorial Lecturer there. He was a Leverhulme Research Fellow from 1933 to 1935; Munro Lecturer at the University of Edinburgh in 1936; the Herbert Spencer Lecturer at the University of Oxford (1960–61); Huxley Memorial Lecturer at Birmingham University (1961); Regents' Lecturer at the University of California (1963); Silliman Lecturer at Yale University (1963–4); George R. Miller Professor at the University of Illinois at Urbana (1965); Andrew R. White Professor at Large of Cornell University (1968), and Honorary Professor of Anatomy and Histology at the University of Nairobi.

He was the author of some sixteen books, several of which have gone into second editions, and more than one hundred and seventy papers in scientific journals on a great range of subjects. He was also General Editor of the new *Fossil Vertebrates of Africa* series (Academic Press, London) and of *Adam or Ape* (Schenkman, New York). Some of the more significant of the published works are listed below in a selected bibliography.

In the autumn of 1972, while on a visit to London and preparing to fly to the United States for a further lecture tour, he suffered a heart attack from which he never recovered. He died on 1 October and was buried by the side of his parents at Limuru overlooking the Rift Valley which was the scene of so much of his active life and momentous discoveries.

In 1928 he married Henrietta Wilfreda Avern by whom he had a son and a daughter. This marriage was dissolved and in 1936 he married Mary Douglas Nicol by whom he had three sons. Mary was his constant companion in the field and in the laboratory and her tireless encouragement, help, and consummate archaeological ability made this husband and wife team so remarkably successful. He remained close to all his children and took a lively interest in the grandchildren, one of whom was observed making string figures at the gathering after the Memorial Service, arranged by his friends Dr. and Mrs. Glyn Daniel, in St. John's College chapel on 20 October.

Louis spoke often of what he called 'Leakey's luck'. Lucky he certainly was, in that he was working in just about the one part of

the world where the evidence of the emergence of man the tool-maker had been so uniquely preserved. That he concentrated his energies here was not simply due to his love of Africa but to his keen observation of its potential, while his success came more especially from his tireless energy and perseverance in the pursuit of the evidence which was both its own reward and the means of making known so many of the missing elements of the ancestry of man. It was he who provided much of the evidence that formed the basis for the long and detailed time-scale against which to measure early hominid biological and cultural evolution; it was his work that made possible the recognition of the dry savanna habitats they favoured and the remains of the hominids themselves in association with the concentrations of artifacts, food waste, and other behavioural factors at the oldest living sites of man in the world.

As Robert Ardrey so dramatically puts it in *African Genesis*:

L. S. B. Leakey has made the discoveries that will tantalise the future. Dr. Leakey and his wife Mary have been the finders beyond equal and they have uncovered in East Africa enough significant remains of man's origin to keep a regiment of analysts busy for a generation.

And again—

I have frequently wondered at the sight of Dr. Leakey, grey hair flying, charging like a Spanish bull down the corridors of his museum, as along the crimson gravel roads so like straight bloody cuts on the face of Kenya: gasping to keep up with him, I have wondered, 'Must he be in such a hurry?'

With the great zest for life that he had and so much material awaiting discovery, so many lines of evidence requiring investigation and so few trained to do it—small wonder he frequently gave the impression of being in a hurry: he was! but gathering up as he went along new friends and new collaborators to share with him the excitement of the hunt and the reward of the successful venture. It will be long before we shall again see his like in energy, enthusiasm, depth of knowledge and experience, dedication, courage, and a perseverance that amounted to genius. It would not be an exaggeration to say that, by his discoveries and his brilliant personality, he gained the admiration and captured the imagination of the world.

Acknowledgements

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and Mrs. M. C. Burkitt for their valued help in compiling this record of an outstanding life and to Dr. Jeffrey Bada for permission to quote the new date for *Homo rhodesiensis*. With the limitation of space, the problem has been to decide what to leave out, so catholic were his interests; the length is, I feel, justified by the fullness of his life and the significance of his contribution.

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Berkeley, California
November 1973

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