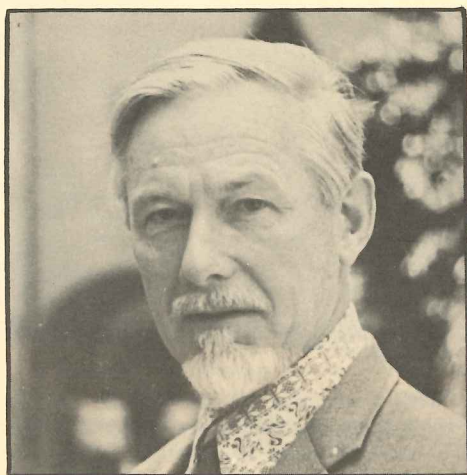




NUMBER 16

SPRING 1980



Desmond Clark

## THE MIDDLE STONE AGE: THE ANTIQUITY OF MAN

By J. Desmond Clark,  
Professor of Anthropology at  
the University of California, Berkeley

Lecture given at a Foundation Fellows Day Conference held at Caltech last October.

Until recently there has been a general lack of interest in the African Middle Stone Age. Quite clearly, the high antiquity of the Earlier Stone Age and the likelihood that the hominids originated in the African tropics three to four million years ago has stolen the thunder. If the Later Stone Age is not quite as spectacular, it nevertheless has a great deal more evidence preserved that gives all sorts of clues to the life ways of these later peoples. There are the remains of settlements; there are artifacts of wood and bone, some of them mounted in handles; there are the remains of the plant and animal foods that they ate; and there is the superb rock art. All these lead up to the historical perspective that comes from correlating the ethnographic present with the recent prehistory.

The Middle Stone Age is not nearly so spectacular. It doesn't have a great deal in the way of fossil human remains associated

— often it is only the stone artifacts that have survived and the other evidence is generally much less. But this is changing and what was formerly the "Cinderella" of the African Stone Age is now turning out to be a great deal more interesting than we thought. Much of this is due to the excavation work done in South Africa and elsewhere during the last eight to ten years. Last year, thanks to help from the Leakey Foundation, I had the opportunity to examine some of the key sites and I would now like to share with you some of this experience and to tell you about some of the significant results and inferences that are coming out of this research.

The Middle Stone Age (or Middle Paleolithic) is that level of cultural evolution when the technological mode was based on the production of certain specialized types of core. The cores were then used to strike the blanks — flakes and blades — which could either be used as they were or turned into a range of shaped tools. From these primary forms the tools of the Middle Stone Age were produced. The Middle Stone Age is found in a variety of different ecological niches and adaptation to these varied conditions resulted in a number of regionally different tool-kits. For instance, blunted blades and large crescents are the characteristic tools of a Middle Stone Age complex called the Howieson's Poort from the type site in the eastern Cape. Here, too, we have the first evidence for hafting and for the production of simple composite tools.

How old is all this material? In the 1930's it was considered to be no more than 10,000 years old. By the 1950's, after radiocarbon dating got going, the dates obtained showed a range between 15,000 and 40,000 years for these industries. Now, after many more dates have been obtained, we can see that the first dates were too young and were contaminated and we now know that the Middle Stone Age began between 100 and 200,000 years ago and that it had mostly disappeared by 40,000 years ago.

What do we know of the climatic and

continued on page 6

## REMEMBERING ALLEN O'BRIEN



Allen O'Brien

Allen O'Brien, Founder and first President of the Leakey Foundation, was killed on March 31 in the crash of a light plane in northern India. He had just completed a two hundred mile trip on elephant back. He is survived by his wife Helen and two daughters and mourned by a legion of colleagues and friends within and without the Leakey Foundation.

Allen was always a pioneer and no less so than when he provided the inspiration, the perspiration, and the financial underwriting to launch the Foundation in 1968.

Allen O'Brien was born in Los Angeles in 1915, the son of Louis O'Brien and Elsa Dombrowski O'Brien. After service in the Merchant Marine he went into electrical wholesaling and eventually became President of Tricounty Electric Company of San Bernardino. He was a super salesman in business and for all the causes for which he worked. He retired at age 45 to travel the world.

Allen lived life with great gusto. Brief excerpts from his correspondence from

continued on page 7

## the L.S.B. leakey foundation

The L.S.B. Leakey Foundation was established in 1968 by a group of eminent scientists and informed laymen who recognized a critical need to strengthen financial support for new multi-disciplined research into man's origins, his evolving nature and his environmental future. It was named in honor of the man who had become known as "the Darwin of pre-history," Dr. Louis S.B. Leakey.

The Foundation sponsors:

International research programs related to the biological and cultural development of mankind.

Long-term primate research projects which may help us to understand how we evolved as a species.

The training and education of students in these fields.

Conferences, publications of scientific papers, and educational programs designed to disseminate knowledge relevant to man's changing view of his place in nature.

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# THREE NEW TRUSTEES

Leakey Trustees welcomed three new members who have recently accepted invitations to serve on the Foundation's Board. They are Mrs. John Boyle Callery, Jr. of San Marino, California, Mrs. Robert Donner of Colorado Springs, Colorado, and Mrs. Richard W. Muir of Encino, California.



Diana Callery with George Jagels

A Vassar alumna and active leader in southern California civic affairs, Diana Proctor Callery was founding president of the Pasadena Jr. Philharmonic Committee, served on the boards of the Y.W.C.A., Girl Scouts and Pasadena Volunteer Bureau. Some of her current commitments include the boards of the Pasadena Junior League, Visiting Nurses Association and the Los Angeles County Museum of Natural History. She also serves as a docent at the Los Angeles County Art Museum and the Huntington Library. Diana and her husband, John, are avid sailors. They have a son and three daughters.



Joan Donner

Joan Donner, alumna of Stephens and Colorado colleges, has been actively involved in Head Start and Senior Citizens programs. Through her association with the Donner Foundation, she became interested in projects designed to help American

Indians to preserve their languages and tribal cultures, such as the establishment of the Rough Rock Demonstration School which has since served as a model for other Indian schools. Her present commitments include the Cheyenne Mountain Zoo, the Audubon Society, and the African Wildlife Leadership Foundation. Joan has been actively interested in Leakey Foundation programs for several years. Her husband, Robert, is a member of the Foundation for Research into the Origins of Man (F.R.O.M.). They have two sons and a daughter.



Frances Muir

The Associates of the L.S.B. Leakey Foundation, the group dedicated to volunteer work for the Foundation, has a new Chairman. Frances P. Muir has taken over the post from Kaye Jamison, who has retired from the office after five years because of the press of other commitments.

Frances Muir is eminently suited to guide the future projects of the Associates. She holds an A.B. with distinction in anthropology from Berkeley and will be doing graduate work in archeology at U.C.L.A. in the fall. Her volunteer experience has been formidable, particularly in San Francisco and Salt Lake City, where she lived before moving to southern California. The wife of Richard W. Muir and the mother of six children, she is also a new Trustee of the Foundation.

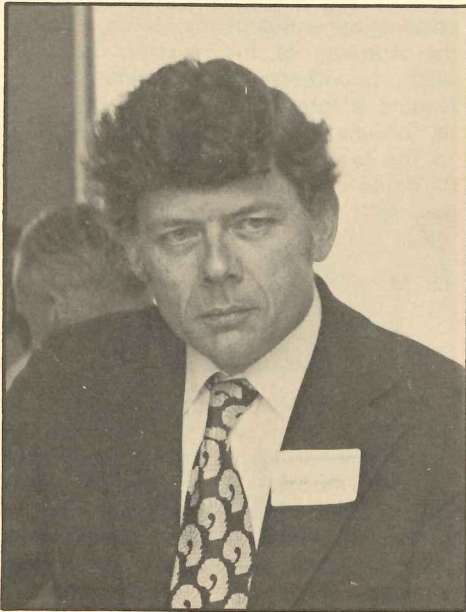
"Following in Kaye Jamison's footsteps," Mrs. Muir says, "is both discouraging and inspiring. She has set very high standards. I am delighted she will continue to be active in the Associates."

The group's plans for the year include hosting dinners and receptions for visiting Foundation lecturers. Its Paleo Project Task Force has been working hard recently to augment the supply of casts for the Stones and Bones project in the Los Angeles secondary schools. Other educational and fund-raising activities will be explored.

"The Associates has proven to be a dynamic, effective volunteer group. Any member of the Foundation is urged to join us," Frances Muir says.

# PROFILE

## GORDON P. GETTY Vice-President



When Gordon Getty became a Fellow of the Leakey Foundation, he was already an expert on Shakespeare, music in general, opera, baseball, limericks, physics, boxing and beers (foreign and domestic). A few months after he became a Trustee, his extraordinary grasp of the science of paleoanthropology was another body of knowledge tucked away in a brilliant, encyclopedic mind.

The Executive Committee can rely on Gordon's having carefully read and understood all of the detailed grant proposals brought before it. It can also rely on his scrutiny of administrative costs to satisfy his insistence that funds donated go directly and in full to scientific studies undertaken. Gordon Getty doesn't want the Leakey Foundation to change the world — only the world of paleoanthropology.

One of Gordon's greatest enthusiasms within the Foundation is its series of symposia. He was involved with the concept of large public symposia and shows his interest at every level, concerning himself with lecturers, subject matter, cost, time, place, and co-sponsors. He always edits the brochures and often writes them. He has even been known to lug sacks of mail to the Central Post Office at night to be sure of on-time delivery! At a symposium, Gordon is not only a most attentive listener, but a strong, positive critic as well. It pleases him to see the whole body of science benefit from a coming together of principals to exchange information in a field that is competitive, and far-flung geographically.

Gordon Getty was born in Los Angeles,

California, and raised in San Francisco, attending St. Ignatius High School and the University of San Francisco. He is married to the former Ann Gilbert and has four sons, Peter, Andrew, John and William, between ten and fifteen years old. His family is one of the joys of Gordon's life. His wife and sons share his interest in sports and ski and travel together. Any conversation Gordon has can be interrupted by an inquiry about the boys. He will wax eloquent for twenty minutes on their virtues and progress.

While he can be found at almost every Forty Niner game, Gordon's great love is opera, and he attends performances all over the world. He sings, himself, generally giving benefit performances of baritone operatic roles and German Lieder. At the moment, he is deeply involved with computerizing a study he has made of the effect of sunlight on buildings and improving his French and Italian language skills.

All of these varied interests are kept within bounds by Gordon's duties as a Director of Getty Oil Company and Trustee of the Getty Museum in Malibu, as well as service on several other boards.

One of the proudest boasts of the Leakey Foundation Board of Trustees is that its members are generous with their time and interest. It is the enthusiasm and generosity of people like Gordon Getty which has helped the Foundation to grow as strong and as confident as it is today.

—Barbara Pelosi

## NEW FELLOWS.

The Leakey Foundation is proud to welcome to its Fellows' roster:

Dr. David W. Cohen, Baltimore, Maryland; Mr. W. H. Hudson, Esq., Dallas, Texas; Dr. & Mrs. Louis Kaufman, Manhattan Beach, California; Ms. Nora L. Klein, Menlo Park, California; Mr. Donald M. Koll, Newport Beach, California; Mr. Norman Lear, Los Angeles, California; Mr. & Mrs. Robert Miller, Jr., Los Angeles, California; Mr. Richard Neill Snyder, Esq., Mill Valley, California; Miss Jean Stewart, Corpus Christi, Texas; Mr. Jack Wolf, Marina del Rey, California.

Fellows of the Foundation now total 325.

The Grant program of the L.S.B. Leakey Foundation, under the guidance of the distinguished Science and Grants Committee, depends upon public support for its success. Every penny of your contribution dollar directly supports the grant awards. Members and donors are invited to designate their gifts in support of specific research projects.

Won't you take this opportunity to direct your contribution to the grant project of your choice?

## GRANT SPOTLIGHT

Dr. Eric Delson

\$6,000 needed

### Visit by Chinese Paleoanthropologists and Paleontologists to American Colleagues

In 1975, under the sponsorship of the National Academy of Sciences, Professor F. Clark Howell led a team of Paleoanthropologists to China where they spent thirty days visiting various scientific institutions and field sites, including the important *Homo erectus* site of Choukoutien. A team of American scientists, headed by Dr. Eric Delson of the American Museum of Natural History, would now like to return the hospitality. Twelve Chinese scientists have been invited to spend a month in the United States conferring with American colleagues and examining human, primate and early Tertiary mammal fossils. American institutions hosting the distinguished scientists will include: the University of California, Berkeley; the University of Michigan, Ann Arbor; the Cleveland Museum of Natural History; the Carnegie Museum of Natural History, New York; Yale University; Princeton University; and the Smithsonian. It is felt by all involved that this visit will be an important step toward full scientific cooperation and collaboration between American and Chinese paleontologists.

Dr. James Sackett

\$1,000 needed

### Attendance at UISPP Executive Committee Meeting and History of Archeology Colloquium

Dr. Sackett, University of California, Los Angeles, will travel to Cambridge, England, to attend two conferences. The first is the annual meeting of the Executive Committee of the Union Internationale des Sciences Préhistoriques et Protohistoriques, the largest international archeological organization. He will serve as the sole representative from the United States.

The second conference is an international colloquium on the history of archeology organized by Professor Glyn Daniel of St. John's College. Dr. Sackett

will present a paper discussing the issue of where and when differences between stone tool industries reflect distinct cultural groupings and where and when they represent activity-specific expressions of a single cultural grouping.

Dr. Daniel Stiles \$1,017 needed

### Ethnoarcheological Research with the Boni Peoples of Eastern Kenya

Dr. Stiles, Lecturer in Archeology at the University of Nairobi, plans to conduct a study of the Boni of eastern Kenya, from the perspective of an archeologist. Early inhabitants of the area, the Boni practice slash-and-burn agriculture with primary crops of maize, millet and sorghum. The research will focus on the material culture, settlement patterns, human ecology, and past and present hunting and butchery methods.

### WOMEN IN ANTHROPOLOGY

Julie Calvert \$2,400 needed

### Gorilla Ecology in West Africa

Since 1974, Ms. Calvert, Ph.D. candidate at the University of California, Los Angeles, has conducted research on the ecology of lowland gorillas in Cameroun, with the goal of examining critical components of gorilla foraging strategy. Three gorilla groups were followed during a twelve month period in the Campo Reserve. Patterns of seasonal growth and reproduction of food plant species were investigated, as well as patterns of forest succession following logging. Ms. Calvert's purpose was to understand how and why food plant availability might vary with land use.

Previously the recipient of Leakey Foundation grants for fieldwork, Ms. Calvert now needs funds to assist her with the preparation of the final stage of her dissertation, which involves data analysis, the chemical analysis of the plant specimens and preparation of three papers for publication.

Dr. Vera Eisenmann \$1,000 needed

### A Standardization of Biometrical and Morphological Studies of Plio/Pleistocene Equids and a Comparative Study of Old World and North American *Equus*

A \$1,000 grant will enable Dr. Eisenmann of the Institut de Paléontologie, Paris, to participate in a conference of European and American paleontologists at the American Museum of Natural History, New York. She will join colleagues in setting guidelines for measurement and study technique of skulls, teeth and limb bones of fossil horses. She will, in addition,



Vera Eisenmann with fossil equid skull

spend one month at the Page Museum, Los Angeles, studying their unique collection of Upper Pleistocene *Equus*.

As Dr. Eisenmann notes, the study of fossil equids is important not only for understanding the evolutionary history of this family, but also for providing critical information useful in biostratigraphy and paleoecological reconstruction.

Betty Goerke \$600 needed

### Experimental Archeology: Replication Methods for Paleolithic Stone Tools

Mrs. Betty Goerke will accompany Dr. J. Desmond Clark on a joint American and Indian field expedition to the Son Valley of east-central India, an area known to contain sites spanning the Acheulian to early Neolithic time periods. There, the team will sample the Acheulian and Middle Paleolithic occurrences and reconstruct the technological processes on which they are based. Replication of the tool-making process will further understanding of the problems and choices made by prehistoric tool-makers.

Mrs. Goerke, Professor of anthropology at the College of Marin, northern California, is an expert in tool replication, having apprenticed under Don Crabtree. She will accompany the team to the field and there demonstrate stone tool manufacturing techniques for flakes, blades and cores, debitage analysis, and heat treatment of stone for pressure flaking.

Nina Jablonski \$1,615 needed

### Functional Analysis of the Masticatory Apparatus of the Gelada Baboon, *Theropithecus gelada*

Ms. Jablonski, a Ph.D. candidate at the University of Washington, will spend three months at the University of Hong Kong, examining the collection of gelada baboon cadavers. She will pay special attention to

the masticatory apparatus.

Recently she has been conducting research on the history of the feeding adaptation of the genus *Theropithecus* by collecting detailed information on the anatomy of the chewing apparatus of the living gelada and establishing relationships between the gelada's diet and its unique cranial morphology. By studying all aspects of the chewing apparatus of the gelada, including the anatomy of the muscles, bones and teeth, hypotheses on the nature of the feeding adaptation of the entire genus can be formulated. These can then be applied to the broader ecological studies of Plio/Pleistocene hominids and the other mammals with which they existed.

Dr. Mary D. Leakey \$25,000

### Site Museums to Protect the Laetoli Footprints

A grant of \$25,000 has been awarded to Dr. Mary Leakey to provide site museums over the recently uncovered footprints at Laetoli, Tanzania.

The footprint trail, which appears to be of three individuals, may present direct evidence that in Pliocene times man's ancestors walked fully upright with a bipedal free-striding gait, the salient feature differentiating man's forebears from other primates. Small fossilized parts of twenty-three individuals have also been found at Laetoli where testing has determined that the footprints were buried under ten centimeters of volcanic ash between 3.6 and 3.8 million years ago.

This tantalizing trail has been subjected to repeated Maasai trespass and weather damage, forcing the field team to laboriously cover the eighty meter long track with six feet of sand to protect it from destruction. The new grant will provide for construction of a permanent shelter over the entire length of the trail. Completion is expected by the end of the dry season in August, 1980.

Dr. Adrienne Zihlman \$1,750 needed

### Comparison of Locomotor Behavior in Pygmy and Common Chimpanzees

Dr. Zihlman, Professor at the University of California, Santa Cruz, will be assisted by a \$1,750 grant in the preparation and analysis of field data collected on the locomotor behavior of the common and pygmy chimpanzee. To test her hypothesis that the pygmy chimpanzee is the best living prototype of the common ancestor of man and the African apes, Dr. Zihlman observed and photographed both chimpanzee species in various locomotor activities at the Yerkes Primate Center in Atlanta. Data gathered will supplement and expand both Dr. Zihlman's anatomical research and other scientists' field observations of pygmy chimpanzees.

Analyses such as Dr. Zihlman's will help

paleoanthropologists reconstruct the locomotor potential of the ancestral species from which bipedalism and the human line emerged.



Adrienne Zihlman and pigmy chimpanzee, Matata

## EUROPEAN CHAPTER

The following grants were approved and will be disbursed through the Leakey Foundation European Chapter:

### Dr. Peter Andrews,

associated with the British Museum, received a \$5,000 grant in support of research on the paleoecology of the Kenyan Miocene. His team will concentrate on the paleoecology of the dryopithecine and ramapithecine apes in an attempt to understand better these early pre-hominid primate radiations. The aim will be to produce a detailed paleoecological analysis using new data gleaned from the existing material and additional collections.

### Simon Collcutt,

research student at the Donald Baden-Powell Quaternary Research Centre, Oxford, was awarded \$3,200 in support of his project, "Quaternary Sediments and Paleolithic Archeology of Selected British Cave Sites." The project will involve detailed analysis of cave sediments in an attempt to determine the nature of Upper Pleistocene environments over the past 130,000 years in southwest Britain. Fieldwork and laboratory analyses will help determine both the physical and chemical nature of the sediments. Faunal remains will be used as a check against error in interpretation, and chronological control will be supplied by C14, thermoluminescence, and uranium series dating.

# CALENDAR UPDATE

Date	Speaker/Location
April	Dr. Jane Goodall <b>CHIMPANZEE BEHAVIOR AND ITS IMPLICATIONS FOR HUMAN BEHAVIOR</b>
29	Royce Hall, UCLA (part of series), University of California – Los Angeles, California
30 & May 1	San Jose State University – San Jose, California
May 2	San Francisco Zoological Society – San Francisco, California
4	UC Irvine/Natural History Foundation of Orange County, California
5	Washington Park Zoo – Portland, Oregon
6	Woodland Park Zoological Gardens – Seattle, Washington
April	Dr. J.S. Weiner
29	<b>COMPONENTS OF PHYSIOLOGICAL VARIATION</b> University of Chicago – Chicago Illinois
30	<b>HUMAN ECOLOGY OF THE SAVANNA</b> ASHUM Lecture/University of Chicago – Chicago Illinois
May 1	<b>HOMINID PHYLOGENY</b> University of Chicago – Chicago Illinois
2	<b>PILTDOWN MAN UNMASKED</b> Cranbrook Institute of Science, Detroit, Michigan
5	<b>EXERCISE IN HOT ENVIRONMENTS</b> University of Toronto, Medical School – Toronto, Canada
6	<b>TROPICAL GENESIS OF MAN</b> State University of New York – Binghamton, New York
8	<b>THE TROPICAL ORIGINS OF MAN</b> Pennsylvania State College – University Park, Pennsylvania
9	<b>THE PILTDOWN MAN HOAX: WHO DUNNIT?</b> Applied Physics Lab/Johns Hopkins University – Maryland
25	Dr. Paul Berliner <b>AN EVENING OF AFRICAN MUSIC</b> UCLA, University of California – Los Angeles, California
June 3	The Leakey Associates will sponsor a <b>PREVIEW OF FLEUR COWLES PAINTINGS</b> Juarez Gallery, 6 to 9 o'clock. For information, call (213) 449-0507
July 23	Dr. Roger Fouts <b>CONVERSATIONS WITH A CHIMPANZEE</b> Denver Museum of Natural History – Denver, Colorado

### Christopher Davies,

awarded \$900 for his research project, "The Pedetids and Lagomorphs from Laetoli, Tanzania," will travel to the site to study its collection of rabbits and springhares. The analyses will include a complete detailed description of the osteology and an interpretation of the soft anatomy so that the materials can be firmly identified and placed in the correct taxonomic position. Mr. Davies is a research student at the University Museum, Oxford.

### Dr. C. B. Stringer,

affiliated with the British Museum, received an award of \$2,250 for his project, "A Comparative Study of the Earliest Human Fossils from Europe." He will conduct an analysis of Middle Pleistocene European fossil materials, including the noted Steinheim, Vérteszöllös and Petralona skulls, in an effort to understand European fossil materials and their relationship to those of Africa and Asia of the same age.

## FOUNDATION CO-SPOSORS DALLAS SYMPOSIUM

The evolution, art, tool-making techniques and hunting strategies of early man were the topics of a day-long symposium, **Ice Age Art: The Roots of Culture**, held in early February in Dallas and co-sponsored by the Leakey Foundation and the Dallas Museum of Health and Science.

Four well-known experts in the field presented a series of lectures and demonstrations exploring the cultural explosion 30,000 years ago which transformed man from a maker of tools into a creator of beautiful and complex works of art and, perhaps, a user of early forms of notation.

Speakers included Alexander Marshack, curator of the Ice Age exhibit and research associate at Harvard's Peabody Museum; John Pfiesser, author of "The Emergence of Man" and "The Emergence of Society"; Professor Jacques Tixier, head of the laboratory of lithic studies at the Institut de Paléontologie Humaine in Paris; and Irven DeVore, Professor of anthropology at Harvard and member of the Leakey Foundation Science and Grants Committee.

## The Middle Stone Age:

continued from page 1

environmental conditions under which the Middle Stone Age was produced? Dating by the Thorium/Uranium method and by amino acid racemization, both show that the Middle Stone Age was already present during the warmer and rather wetter period known as the Last Interglacial, about 124,000 years ago and even earlier.

The Interglacial was a time when the sea level was raised some six to eight meters above its present level and a number of caves were cut in cliffs around the continent. By about 75,000 years ago, with the onset of the Last Glacial, the climate had become appreciably colder and drier. Therefore, during early Middle Stone Age times the climate was warmer and rather wetter but the later Middle Stone Age was contemporary with conditions of increasing cold, the lowering again of the sea level and the exposure of large areas of the continental shelf. The Middle Stone Age is found resting on — sometimes in — the top of the six to eight meter beach and a long period of occupation lies above.

On the border between Swaziland and Natal there is a very important cave which has produced fossil human remains. It contains a record that goes back at least 120,000 years and shows that the base of the Middle Stone Age there may be as much as 195,000 years old. Of special significance here are the human remains, all of which belong to Modern Man and show no Neanderthal characteristics. Evidently the Middle Stone Age is very, very much older than we thought and so are the remains of Modern Man that go with it.

The preserved faunal assemblages in this and other caves show interesting patterns of change in the diet and so in the hunting strategy of the populations that lived in the caves.

The Klasies River and Herold's Bay caves show that shell fish were regularly collected, seals and penguins were eaten and probably were regularly scavenged. This is the earliest evidence we have in the world for the use of shell fish and sea foods.

During the Interglacial, the south coast was bush covered and the animals hunted were medium-sized species of bush antelopes. With the onset of the cold in the Glacial, the bushveld gave place to grassland and the animal population also changed so that the people were now adapted to hunting the large grazing antelopes. Since the giant buffalo, blue antelope and roan are represented in the bone waste mostly by new born or fully adult animals, it is possible that the MSA hunters concentrated on killing new born calves and the females at the time of giving birth. The age pattern of eland and bastard hartebeeste, however, reflects all ages and it would seem that the hunting strategy here was different. Both these animals are susceptible to driving and can be killed in falls or by bogging. It is also inferred that the exploitation of large antelopes of the grasslands requires a different kind of social

organization — large, highly mobile groupings with a large terrestrial range. This appears to have been the pattern during the Middle Stone Age — sparsely populated regions but larger groupings than those of hunter/gatherers in the bushveld during the Later Stone Age.

We now have several butchery sites where a number of large animals, or a single individual, were killed and butchered. These are at open air sites in South Africa or on the Cyrenaican coast or in Malawi where the remains of a single elephant showed well the nature of the equipment used for butchering and eating the meat.

There is also much evidence from the Middle Stone Age for the use of paint. Rubbed ochre pencils are a common feature in the deposits and one actual quarry site for it has been excavated. As yet, there is no evidence for art but the earliest known paintings are not much younger as they date from about 27,000 years ago. The first signs of ritual practices appear in the Middle Stone Age and the dead were now buried. We have burials of Neanderthals and early modern forms of man in Europe and Asia, and the child burial found in Border Cave and adults at Mamebece. The emergence of a belief in the after life is shown by the grave goods that accompany the buried body. Handicapped members of a group, as discovered from burial evidence, owed their continued existence to the care shown them and the food shared between all members of the band.

By the end of the Middle Stone Age, it is clear that the human populations were anatomically modern people, and now there is evidence from South Africa that Modern Man himself was in existence about 100,000 years ago. The most complete remains are those from the excavations in the caves of Klasies River Mouth and in Border Cave. The remains from the first site are fragmentary and have not yet been fully described. They consist of cranial, dental and some post-cranial parts. Most of the specimens are anatomically modern. The Border Cave material is all believed to come from the top of the earlier MSA and to date to 90 to 100,000 years B.P. Three adult individuals and an infant are represented, all of them anatomically modern with features that suggest they may be ancestral to the Hottentot and, perhaps, also to the African Negro.

The discovery of fully modern human fossils of this very early time in South Africa has led some investigators to suggest that our own species may have evolved in the southern part of the continent and later spread to other parts of the world, eliminating the Neanderthals of North Africa and Europe. They also point to the early *H. sapiens* fossil from Florisbad Spring in the Orange Free State, which is probably about 100,000 years old and is looked on as an immediate ancestor of modern man, as upholding the hypothesis.

It is clear that anatomically modern characteristics go back a long way in Africa and the fossils like *H. sapiens rhodesiensis* from Kabwe (Broken Hill), Elandfontein in the Cape, Ndutu in northern Tanzania, Bodo in the Ethiopian Rift, are all associated with Middle Pleistocene faunal assemblages and Acheulian artifacts. Two later crania from Omo again attest modern features as early as 100,000 years ago. A jaw fragment from a Middle Stone Age cave in Ethiopia (Porc Epic) shows both some Neanderthaloid and some modern features.

In two caves in Morocco, fossil remains have been found with the Middle Paleolithic Aterian complex that date to more than 50,000 years ago. These also are anatomically modern and appear to be ancestral to the prehistoric population in that region of the continent in the closing part of the Pleistocene. So, not only is there now very early evidence for Modern Man in the continent but there are also very ancient links with the more recent African races.

On the dating evidence, the North African Neanderthals appear to be contemporary in part with the modern fossils from sub-Saharan Africa and from Morocco. This situation is paralleled in the Near East where, at the Skhūl Cave at Mount Carmel, the burials point to a development of an anatomically modern type. The associated artifacts are of Middle Paleolithic (Mousterian) form. In Israel, at another cave (Zafsa), all sixteen skeletons are anatomically modern.

All this shows that modern humans were present in other parts of the world at the same time as in South Africa.

What then was the catalyst behind the appearance of Modern Man? Was it technical superiority? Was it a full language communication system? Did Modern Man make his appearance at much the same time in all the occupied parts of the Old World? Is the dating of fossils and associated finds satisfactory? Did the modern form of man spread from one nuclear region into other areas or did it evolve independently in a number of places?

These are questions that we cannot answer as yet, but they are of great importance to us all and I would like to close with a plea for a new concentrated and systematic program, involving a series of disciplines and international studies, to cover the Middle Paleolithic/Middle Stone Age time range when our own species makes its first appearance. We need greater precision in dating the older parts of this time range, beyond the present limit of C14. We also need systematic excavation of sealed and well stratified occupation sites, and we need more complete human fossils in precise contexts — not only single specimens but a sufficient number to show the degree of variability in a single population.

The time for a systematic program of this kind is long overdue. After all, we will be searching for our direct prehistoric ancestors.



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# FRANKLIN MOSHER BALDWIN FELLOWSHIPS

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Eight Franklin Mosher Baldwin Fellowships were awarded during the past granting period.

## Steven A. Brandt,

Ph.D. candidate at the University of California, Berkeley, received a \$1,900 grant to assist the Somali government in establishing a long-term program in paleoanthropology. Concentrating on two specific needs of Somali, Mr. Brandt will initiate: 1) the development of a paleoanthropology program for the Ministry of Culture and Higher Education, and 2) an assessment of selected regions as potential areas for research.

## Mwitelela Nicholas Katanekwa,

Keeper, Prehistory Department, Livingstone Museum, Republic of Zambia, has been awarded \$2,000 in support of the Upper Zambezi Iron Age Research Project, Phase II. Archeological research conducted will allow reconstruction of the Iron Age of southwest Zambia. Areas of special interest include economics, settlement patterns, agriculture and ecology.

## Dr. Fidel T. Masao,

former Baldwin Fellowship recipient, received \$8,000 in support of continued

excavations of three stratified sites with Sangoan/Stillbay—Middle Stone Age and Later Stone Age deposits. It is anticipated that data from these sites will assist in the definition of the Sangoan/Stillbay industries found in central Tanzania. Dr. Masao is Director of the National Museum of Tanzania.

## Sally McBrearty,

Ph.D. candidate at the University of Illinois, Urbana—Champaign, received a second Baldwin Fellowship for \$5,435 in support of her ongoing archeological investigations in western Kenya. Ms. McBrearty will conclude her present investigation of the Mugurak River site, first examined by Dr. Louis S. B. Leakey and Archdeacon Owen in 1945, and survey and map a second site, Yala Alego, also noted by Leakey and Owen. Her research concentrates on the Sangoan-Middle Stone Age transition.

## Michael Mehlman,

also a Ph.D. candidate at the University of Illinois, received a \$4,805 grant in support of his research on the Naseran industry of Tanzania. Mr. Mehlman has been invited to the Institut für Urgeschichte, Tübingen, to re-analyze the Kohl—Larsen collection of over 100,000 artifacts from the Mumba rock shelter. Subsequently he will return to

Mumba for further excavations and conclude with a reconnaissance of potential sites to the southeast of Lake Eyasi near the Kidero Mountains.

## Kathleen Rubin,

Ph.D. candidate at the University of Pennsylvania, was awarded \$2,450 to enable her to travel to Botswana to conduct field research on the Middle Stone Age. After examining the MSA collections in several museums in southern Africa, Ms. Rubin will spend six weeks as a field assistant at a site in the central Kalahari, thought to be at least 150,000 years old.

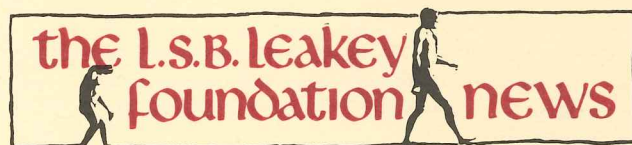
## Dr. Daniel Stiles,

Lecturer in Archeology at the University of Nairobi, received a \$2,500 award to assist with the training of African archeologists at the university. Funding will support six undergraduate students in their individual summer field projects and in the subsequent analysis stage.

## Dr. Thomas Wynn,

University of Colorado, Colorado Springs, received a fellowship of \$1,200 to investigate a prehistoric lithic industry found in the Nyakyusa Basin of southwest Tanzania contemporary with Upper Pleistocene and Holocene industries in central Africa. His research plans include a stratified site survey and test excavations.

Since their inception in 1977, twenty-three Baldwin Fellowships have been awarded by the Leakey Foundation.



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