the L.S.B. Leakey Foundation News

SEE SUPPLEMENT FOR SPECIAL GREAT APES REPORT

NUMBER 6 FALL 1976

"ENDANGERED SPECIES: MAN AND HIS WORLD"
DINNER TO HONOR CONSERVATIONIST SIR PETER SCOTT, DEC. 3

James Stewart to MC, trustees Kay Jamison and George Jagels to chair the event, Leakey Associates plan and host dinner.

In what is expected to be a landmark event in the Los Angeles area, the Leakey Foundation will sponsor a special dinner program, "ENDANGERED SPECIES: MAN AND HIS WORLD" honoring the eminent conservationist Sir Peter Scott, vice president of the World Wildlife Fund. The distinguished actor and Foundation fellow, Mr. James Stewart, is to be master of ceremonies. The dinner will be held at the Beverly Wilshire Hotel, Beverly Hills, Ca., December 3.

Sir Peter, an outspoken activist in the field of conservation and internationally known and honored for his tireless and distinguished efforts in behalf of endangered species throughout the world, will give the keynote address.

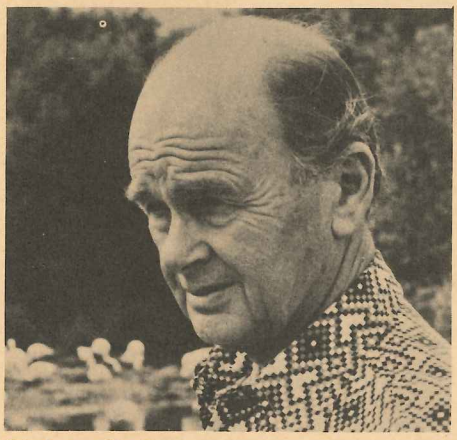
Major leaders in the fields of anthropology, conservation and ecology are expected to attend. Other special guests will include trustees, friends and fellows of the Foundation from around the world.

Trustee Mrs. Max K. Jamison, who heads the Foundation's national fellows program and Foundation vice president George Jagels will co-chair the dinner. Trustee Mrs. Arnold Travis, treasurer of the Foundation, is program chairperson with trustee Mrs. R. Hugh Caldwell, Jr. assisting.

Serving on the dinner committee are: Mr. Rupert Allan, Mrs. Robert M. Beck, Mrs. Justin Dart, Mrs. Henry Escher, Jr., Mrs. David Friedman, Mr. Gordon Getty, Mrs. George Jagels, Mrs. Kenneth Leventhal, Mrs. Hulsey Lokey, Mrs. Richard Muir, Mrs. Edwin S. Munger, Mrs. Kurt Mann, Mrs. Coleman Morton, Mrs. Ronald Pelosi, Mrs. Mason Phelps, Mrs. Brawner Ralphs, Mrs. Renata Russell, Mrs. Jay Sandrich, Mrs. J.C. Schwarzenbach, Mrs. Janice Seaman, Mrs. James Stewart, Mrs. Frank Woods.

The Leakey Associates, under the direction of Mrs. Jamison, will plan and host the dinner. Committees to handle these activities were formed in early September and work is now underway to expedite and coordinate all details.

Invitations to the blacktie event are expected to be mailed to Leakey Foundation members and interested friends by October 25.



Sir Peter Scott

ABOUT SIR PETER SCOTT

There is probably no living man who is better qualified to talk about endangered species than Sir Peter Scott.

He is vice president of the World Wildlife Fund, honorary director of the Wildfowl Trust, and has been chancellor of the University of Birmingham in England since 1974. He has participated in numerous expeditions including an exploration of the unmapped Perry River in the Canadian Arctic, ornithological expeditions to the Central Highlands of Iceland to band wild geese, and expeditions to the Galapagos, the Seychelles, the Pacific Islands, and the Antarctic.

And he is a man of diverse interests.

Sir Peter has exhibited oil paintings at the Royal Academy since 1963, specializing in bird paintings and portraits. He is interested in gliding — British national champion in 1963 and runner-up in 1968; in yacht racing: he represented Great Britain and was bronze medal winner at the 1936 Olympics. In addition, he was three times winner of the international 14-foot dinghy championship for the Prince of Wales Cup. He held the post of president of the International Yacht Racing Union for 14 years, was chairman and is now vice president of the British Gliding Association.

He is a member of many distinguished organizations including the International Union for the Conservation of Nature and Natural Resources, where he has been chairman of the Survival Service Commission for 11 years. The Commission is

Continued on page 2

DO YOU WISH TO ATTEND?

Reservations for the Foundation's special "ENDANGERED SPECIES: MAN AND HIS WORLD" dinner, December 3, are limited to 300 persons. Trustees and fellows receiving early announcement of the event had already reserved nearly one-third of the available tickets as this issue went to press in early October. If you wish to attend, you are urged to contact the Foundation with your reservations immediately. Tickets are $50 per person ($500 per table). Write: Reservations, Leakey Foundation, Foundation Center 206-85, Pasadena, Ca. 91125.

PLEASE NOTE: New fellows will be the guests of the Foundation for that evening. This is a golden opportunity to join our "inner circle" of Foundation supporters. For further information on how you can become a part of the fellows program, see page 7 or write Foundation headquarters.

At a recent meeting to formulate plans for the upcoming December 3 dinner were Leakey Associates (standing l to r) Frances Muir, Helene Beck, Trudie Ralphs, Nina Sandrich, Janice Seaman, Carol Friedman and (seated l to r) Katie Schwarzenbach, and Kaye Jamison.

the L.S.B. Leakey Foundation

The L. S. B. Leakey Foundation was established in 1968 by distinguished laymen and scientists to encourage international research focusing upon man's origins, his evolving nature and his environmental future. The Foundation was named to honor Dr. Louis S. B. Leakey in recognition of his outstanding contributions to the fund of human knowledge.

The Foundation sponsors:

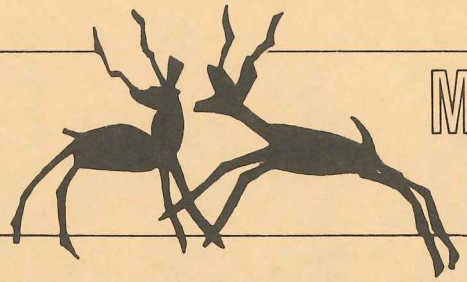
- Exploration and excavation of sites having a bearing upon the evolution of man.
- Behavioral and taxonomic studies of living primates as a corollary to paleontological finds, as well as to provide insight into contemporary man's behavior.
- Laboratory studies of field specimens resulting from exploration and excavation.
- Publication of scientific reports of field and laboratory findings.

The L. S. B. Leakey Foundation is a public foundation. All contributions are tax-deductible as provided by law.

the L.S.B. Leakey Foundation news

Editor: Ruth G. Fox
Art and Design: Jim Faber

THE L. S. B. LEAKEY FOUNDATION NEWS is published by the Foundation as a service to its members. Single copy price, $1. Address all correspondence: L. S. B. Leakey Foundation, Foundation Center 216-76, Pasadena, Ca. 91125



MEMO FROM THE PRESIDENT

Archeology, like much of academia, has long had a reputation for sempiternal quarrels. Louis Leakey was no stranger to controversy and often waded in "boots and all". Sometimes he was proved right, sometimes wrong, and the jury is still out on other issues. But out of controversy often comes knowledge, and it is deplorable that in recent years to label someone "controversial" has become pejorative.

There are aspects of disputation that are unhealthy and contrary to the scientific spirit. Rivalry of the wrong kind can impede progress, lead to false or over-optimistic claims, and degenerate into national quarrels at one level, to personal animosity at another.

An unanticipated spin-off of the work of the Leakey Foundation has been the encouragement of more team play. Our program in training Africans from eastern and southern Africa in archeology and primatology recognizes the need to involve local people. The expeditions we have supported in Iran, Israel and Ethiopia and the cooperative primatology studies in Tanzania and Kenya are international, as was the conference we supported in London on "The Geological Background to Fossil Man".

Support is the life blood of such cooperative ventures. Each year the Foundation seeks about $150,000 for research. Since 1969, we have disbursed more than one million dollars in grants. We continue to seek support from farsighted individuals, and we hope in the coming year to increase our support from business and industry through our new corporate appeal program directed by Mason Phelps and Gordon Getty.

Contributions are tax-deductible, since we are a public foundation. Because of generous benefactions, our modest overhead is covered and we can apply 100% of new gifts to the scientific work. Some of our most useful gifts have been serendipitous.

Cordially,

Ned Munger

Edwin S. Munger

SIR PETER SCOTT

Continued from page 1

responsible for maintaining a world center of information about endangered species. It was in this context that he created the now famous "Red Data Books." The books, issued periodically to governments and specialists, provide current status information on all threatened fauna and flora. The Survival Service Commission also maintains committees on which many of the world's leading authorities on threatened species serve, evaluating information received by the parent Union.

In addition, Sir Peter maintains one of the world's leading waterfowl sanctuaries at Slimbridge in Gloucestershire, England where he has over 70 species of living wild waterfowl that are under continual study by a resident staff with unique laboratory facilities for propagation. Many wild species of geese and swans fly as far as Siberia and India and return every year to his sanctuary.

Sir Peter is the recipient of the Gold Medal from the New York Zoological Society and has been awarded the Icelandic Order of the Falcon, and the Arthur Allen medal. He is the author of numerous articles and books, among them an autobiography, "EYE OF THE WIND" published in 1961.

During the past 20 years his interest in natural history has extended from ornithology to ichthyology and he has developed an intimate knowledge of coral reef fishes through snorkeling and scuba diving.

Born in London, September 14, 1909, Sir Peter has three children: Nicola, Dafila and Falcon, and resides with his wife, the former Philippa Talbot-Ponsonby at Slimbridge, Gloucestershire, England.

The Leakey Foundation is honored to have this eminent conservationist as its guest speaker on December 3.

ANNUAL MEETING, DEC. 4

The annual meeting of Leakey Foundation trustees has been scheduled for December 4 at the California Institute of Technology, Pasadena, Ca. Trustees from all over the U.S. as well as from Europe are expected to attend.

A plenary session and a meeting of the science and grants committee are scheduled. On the agenda: the election of officers and new members to the board of trustees as well as the presentation of annual summary reports from committee chairpersons.

LETTER TO THE PRESIDENT

A recent letter from Boyce Rensberger, science writer for *The New York Times*, to Dr. Edwin S. Munger, president of the Leakey Foundation, seems worthy of mention. It reads in part:

"I have been meaning to write for some time and tell you how much I enjoy reading the L.S.B. Leakey Foundation News. *It's one of the few publications of its type — and I see quite a few from all sorts of scientific and quasi-scientific foundations — that actually is worth reading and keeping. The spring/summer 1976 issue, No. 5, was especially good what with the 8-page special report of Q & A from the Fellows Day Conference. My compliments to Ruth Fox."*

KWEKU RETURNS TO FREEDOM

By Meredith Rucks

(Mrs. Rucks is a graduate of the University of California, Berkeley with a B.S. in anthropology. For the past two years she has been working in Ghana rehabilitating chimpanzees for Dr. E.O.A. Asibey, Chief Game and Wildlife Officer at Bia National Park, one of two tropical forest parks and fully protected chimpanzee habitats in all of West Africa. This article details one of her rehabilitation projects. Its purpose: to recycle valuable breeding individuals back into the diminishing wild population.)

Mrs. Rucks with an orphaned infant chimp.

When I first met Kweku at the Kumasi Zoo where he had been brought as an infant some six years before, I was struck by his fine physical appearance. He was an extremely handsome chimp with a thick glossy coat, healthy white teeth, an alert expression and unusual all-black face.

He had adapted to survival at the Zoo. Feeding time was the height of his day. To any visitor he would fear-grimace while lipsmacking and extend a handpalm up through the bars begging for tidbits while masturbating with one foot. A remarkable but tragically typical picture of a "zoo chimp". The only contact he had ever had with other chimps before joining our rehabilitation project was terminated after he had brutalized a chimp only two years his junior (the brutality was largely due to ignorance and an inability to control his own actions).

Our first step was to condition him to his handler and get him into optimum physical shape. A chimp as mature as Kweku may not always respond. Chimps between 18 months and three years are considered the most ideal subjects.

Following his transfer to a Stage I cage near the Bia National Park, it became apparent that anyone who was going to "handle" Kweku would have to out-wrestle him. After a two or three day test period both Kweku and handler would know if the relationship was going to work. When it did, his days settled down into a routine of extended grooming and playing with a handler inside his cage. Feeding occurred three times a day but no longer provided Kweku with his only diversion.

Within two weeks we were able to promote him into Stage II, introducing him to another chimp, François. François was two years old and had been reared as a household pet. His only exposure to another chimpanzee had been at the Zoo where he waited a week for transfer to the rehabilitation center. He had been terrified and bullied by the three-member infant chimp group there and had been secluded in a small cage.

After a quarantine period and habituation to his handlers, Francois was introduced to half of Kweku's divided cage. They were separated by wire mesh but could see each other at all times.

Kweku became very agitated and dis-

Continued on page 8

TURNBULL, SAGAN, DUBOS TO LAUNCH 1976-77 LEAKEY LECTURE SERIES

Carl Sagan René Dubos

Anthropologist Colin Turnbull, astronomer Carl Sagan and microbiologist René Dubos are among the headliners scheduled to launch the Leakey Foundation's lecture series for the 1976-77 season. In addition, distinguished scientists Dr. Mary Leakey, Richard Leakey and Dr. Jane Goodall will appear in speaking engagements sponsored by the Foundation this coming spring. From all indications it should be a stimulating lecture season.

Dr. Turnbull will appear November 9 at Royce Hall, University of California, Los Angeles, in a presentation, "THE MOUNTAIN PEOPLE" based on his best selling book of that name. The fragility of a society structure and the degradation of human behavior that accompanies its collapse, will be the provocative subject. The lecture is co-sponsored by the UCLA Committee on Public Lectures and the Leakey Foundation and is the first of four lectures in a series the Foundation will co-sponsor at UCLA.

Turnbull's account of the Ik, an African tribe which in less than three generations has deteriorated from a group of daring hunters to a scattered, hostile people whose only goal is individual survival, poses a frightening parable that society should heed. So disturbing are its implications that playwright Peter Brook has dramatized some of Turnbull's vivid experiences in a play "THE IK" which will be presented as part of the French Contemporary Arts Festival at the University on the three evenings following his Foundation lecture, November 10 through 12.

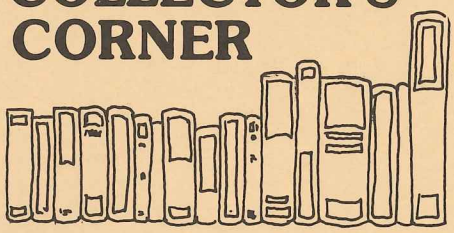
Carl Sagan will lecture the evening of Janaury 12 at Beckman Auditorium, California Institute of Technology, Pasadena. Dr. Sagan is director, Laboratory for Planetary Studies and David Duncan Professor of astronomy and space sciences at Cornell University where he also serves as associate director of the Center for Radiophysics and Space Research.

Currently on leave to the Jet Propulsion Laboratory at Caltech, he is a member of the Viking Lander Imagery Flight Team and chairman of its science analysis group. He was involved in the early deliberations on the future of martian exploration which led to the Viking project and the first Mars landing. His talk, "TERRESTRIAL AND EXTRATERRESTRIAL INTELLIGENCE: A SEARCH FOR ORIGINS" will be co-sponsored by the Leakey Foundation and the Caltech Faculty Committee on Programs and is part of an annual series of four lectures presented by the Foundation together with Caltech each year since 1968.

Also on the program of Caltech lectures is René Dubos, professor emeritus of Rockefeller University, New York, who will appear February 1. Dr. Dubos is an internationally known microbiologist and experimental pathologist who first demonstrated the feasibility of obtaining germ-fighting drugs from microbes over 30 years ago. In a more general way, Dr. Dubos has been intensely concerned with the effects that environmental forces — physio-chem-

Continued on page 8

COLLECTOR'S CORNER



Eight video cassettes (running time approximately 60 minutes each) have been made of the historic two-day symposium "IN SEARCH OF MAN" co-sponsored by the L.S.B. Leakey Foundation and the California Academy of Sciences in San Francisco, December 1973.

Each cassette contains the lecture of one of seven distinguished scientists. The eighth tape covers the exciting panel discussion in which ten scientists participated.

Recorded in black and white they are available on ¾" or ½" U-Matic cassettes. Price: $110 per cassette including postage and handling.

Scientists and subjects are:

Dr. Raymond Dart —"The Discovery of *Australopithecus* and its Implications"

Dr. Richard Hay — "The Geology of Olduvai Gorge and its Meaning for the Understanding of Human Evolution"

Dr. Mary Leakey — "The History and Meaning of the Discoveries in Olduvai Gorge"

Dr. Glynn Issac — "Discoveries East of Lake Rudolf: Early Traces of Human Behavior"

Dr. Jane Goodall — "The Chimpanzee: Portrait of the Best Known Ape"

Dr. Bernard Campbell — "Studies of Human Prehistory: Guideposts to Survival?"

Dr. J. Desmond Clark — "Ways of Interpreting the Past"

Panel discussion: Bernard Campbell, moderator. Raymond Dart, Richard Hay, Mary Leakey, J. Desmond Clark, Glynn Isaac, Jane Goodall, Dian Fossey, Bernard Campbell, Clark Howell, David Hamburg participating.

To order write: Cassettes, Leakey Foundation, Foundation Center 206-85, Pasadena, Ca. 91125.

PROFILE

Fellows, philanthropists, tool manufacturers
LEIGHTON AND ROBERT WILKIE

Leighton A. Wilkie Robert J. Wilkie

Leakey Foundation fellows Leighton and Robert Wilkie had a long, eventful and remarkable acquaintance with Louis Leakey. It spanned more than 20 years until Dr. Leakey's untimely death in 1972.

"One of my most prized possessions," writes Leighton Wilkie, in an excerpt from a tribute he wrote on Louis Leakey in 1973, "is a fist ax that Louis Leakey made in less than 15 minutes.

"He had selected a suitable block of flint and with a mallet he struck the stone to break off large chunks. Then with his knowledge of the characteristics of the flint and a skilled hand, he broke off smaller flakes to attain the classic, almond shape of the Stone Age fist ax. Louis presented the finished product to me and I was so grateful and impressed that I gathered up the chips that had broken from the original block. I have the collection of chips along with the beautifully finished fist ax in a display case behind my desk."

The Wilkies are inventors and developers of machines, cutting tools and processes which have become basics to industry throughout the world. They are the founders of a series of tool manufacturing plants and distribution companies. But their hobby and avocation is anthropology.

That in itself, may not be so unusual except for the fact that the Wilkie brothers had a unique, all-encompassing interest.

They were fascinated with the history of tools. It was this fascination that led them on a series of adventures and achievements which have made a lasting and significant contribution to the continuing quest to understand man's origins.

As Leighton Wilkie describes it, "Before 1936, I had assembled a goodly collection of tools and I started to enlarge it to enable myself and others to envisage the complete history."

First they pursued the tool collecting "with missionary zeal" to satisfy their own curiosity. Then they began to hope that at the same time they could make some kind of personal contribution to the study of man's origins.

"This history of tools is synonymous with the history of man," Leighton has said. "Primates became men only because of their special advantage in being able to make and improve and use tools."

It was this belief and dedication that eventually led the brothers to Louis Leakey. They met in 1950 in Africa. That meeting was the beginning of a special friendship; one which drew the Wilkie brothers into ever-expanding horizons.

In 1951, in an effort to consolidate their many philanthropic interests and activities, they formed and incorporated the Wilkie Brothers Foundation ..."dedicated to the achievement of unattained horizons in human welfare, through research, discovery, invention and educational media." In its brochure, a quotation from Carlyle: "Man is a tool-using animal ... without tools he is nothing, with tools he is all."

Then in 1953, after years of collecting, analyzing and assembling, they started their unique tool exhibit on tour around the country. Hundreds of thousands of people saw it. That same year, the exhibit, "CIVILIZATION THROUGH TOOLS" went on display at the Chicago Museum of Science. It is there to this day.

In the same year, so impressed with Dr. Leakey's thinking, accomplishments and daring, the Wilkie Brothers Foundation made a grant in support of Louis' work, which was just beginning at Olduvai Gorge. That support continued until Dr. Leakey's death. Correspondence was exchanged, the friendship grew. In 1955, Leighton visited Olduvai Gorge for the second time. Dr. Leakey visited with the Wilkies in Chicago whenever he was in the United States.

In 1959, following Dr. Leakey's historic discovery of Zinjanthropus ("Nutcracker Man") Leighton Wilkie was one of the first to receive a set of photos of the fossil cranium with Louis and his wife, Mary, standing in front of the find. At the same time, a plaster cast of the lower jaw was sent. With the data before him, Leighton enthusiastically engaged an artist to mold a head to represent what he thought "Nutcracker Man" must have looked like. That rendering, much photographed and published throughout the world, still stands in the offices of the Wilkie Brothers Foundation.

But more was yet to be accomplished between Louis Leakey and the Wilkie brothers.

In 1960, Dr. Leakey spoke of an interest in launching an exciting project to study in depth the lives of the great apes. Up to then, very little was known of these primates in the wild. He asked Leighton to make an initial grant to begin this venture. He had someone to start the first field research on chimpanzees. It was Jane Goodall.

In 1967, Dr. Leakey again called on the Wilkies for initial support for Dian Fossey, whom he had chosen to begin a study of the mountain gorilla.

And in 1971, he came to the Wilkies again, to fund the first long-term investigations on orangutans in Indonesia by Biruté Galdikas-Brindamour.

Each of these women was hand-picked by Dr. Leakey. All of them received the funding needed to begin their research from the Wilkie Brothers Foundation. Today these women continue their pioneering studies in the wild, gathering new insights concerning animal behavior and challenging many traditional concepts (see *Foundation News* supplement, this issue).

"How lucky I have been," Leighton tells us, "to have had the privilege of participating from the very outset by contributing to the launching of the investigations made by Jane Goodall ... Dian Fossey ... Biruté Galdikas-Brindamour ..."

Today, Leighton Wilkie, who is 76, lives on the outskirts of Chicago and has a home in Santa Barbara. He was born in Winona, Minnesota. He is a director of the Santa Barbara Museum of Natural History and the First National Bank of Des Plaines, Ill. His awards include: an honorary doctor of law degree from St. Mary's College, Winona; the American Academy of Achievement Golden Plate Award; the American Society of Tool and Manufacturing Engineers education award for 1966 and ten Freedom Foundation awards from 1950 through 1968.

Robert Wilkie, who was born in Winona, Minnesota in 1910, lives in Escondido, Ca. He is a director of 60 international corporations and chairman of the board of the DoALL Science Center, Inc., Escondido, Ca.

The Wilkie brothers' manufacturing enterprises include Continental Machines, Inc., Contour Saws, Inc., and the DoALL Company, all of Des Plaines, Ill.

Both men are still deeply involved and dedicated to the support of studies into man's origin. They continue to be active in the Leakey Foundation; Leighton as a member of the board of trustees, Robert as a fellow of the Foundation. They also continue to attend numerous congresses, conventions and symposia concerning man's origin throughout the world.

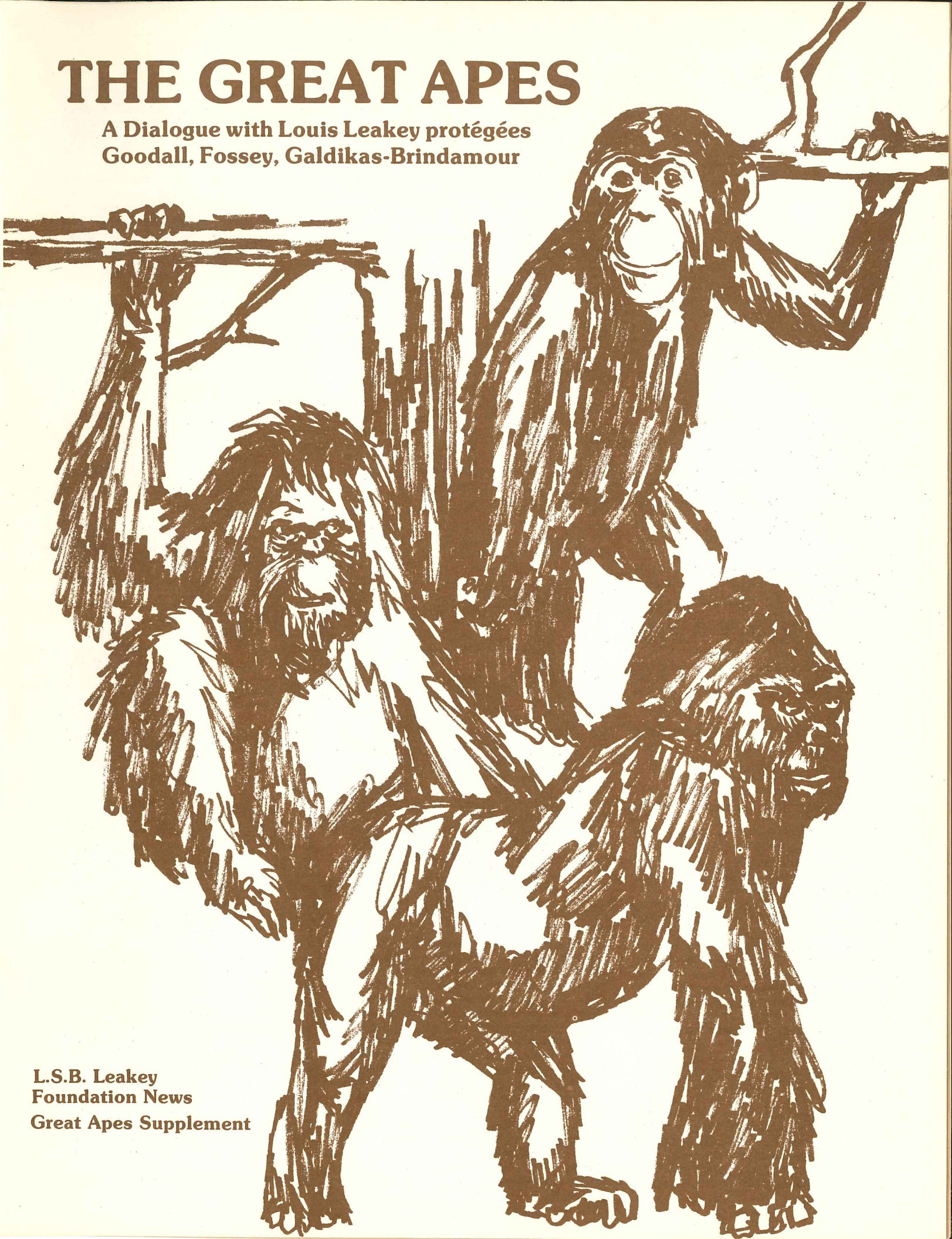
"My personal life has been affected in many different ways and I have been enormously enriched through my contacts with Louis Leakey," says Leighton.

The Leakey Foundation, in turn, feels that the contributions that the Wilkie brothers have made to the search for man's origin are immeasurable. Without the insight, imagination, dedication and generosity of men such as these, explorations into our beginnings could never be carried on.

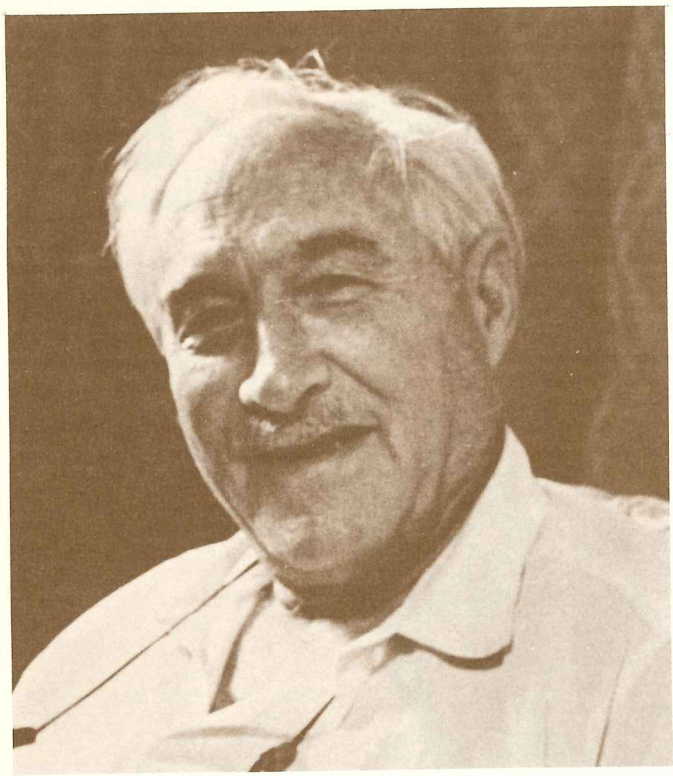
Yusuf M. Juwayeyi, a Leakey grantee from Malawi and now a graduate student in archeology at the University of California, Berkeley, served on the survey and excavation team at the Archeological Field School of the University of Arizona, Tucson, this summer. He was one of 23 students in the special program.

THE GREAT APES

A Dialogue with Louis Leakey protégées Goodall, Fossey, Galdikas-Brindamour



L.S.B. Leakey
Foundation News
Great Apes Supplement



Louis S.B. Leakey

How does environment influence chimpanzee behavior? Is there cannibalism among the great apes? Why are there inter-community conflicts? Are there infanticides among the silverback gorillas? Are orangutans really so solitary? Do they use tools? How does the dominance order work among males in a given community?

These are just some of the many questions discussed on Wednesday evening, May 5 at the Caltech Athenaeum when three protégeés of the late Dr. Louis S.B. Leakey met in a unique and informal get-together with more than 100 Leakey Foundation trustees and fellows to review their on-going research on the great apes.

It was, as might be expected, an extraordinary evening.

None of them had been together in the U.S. since the inception of their respective long-term field studies.

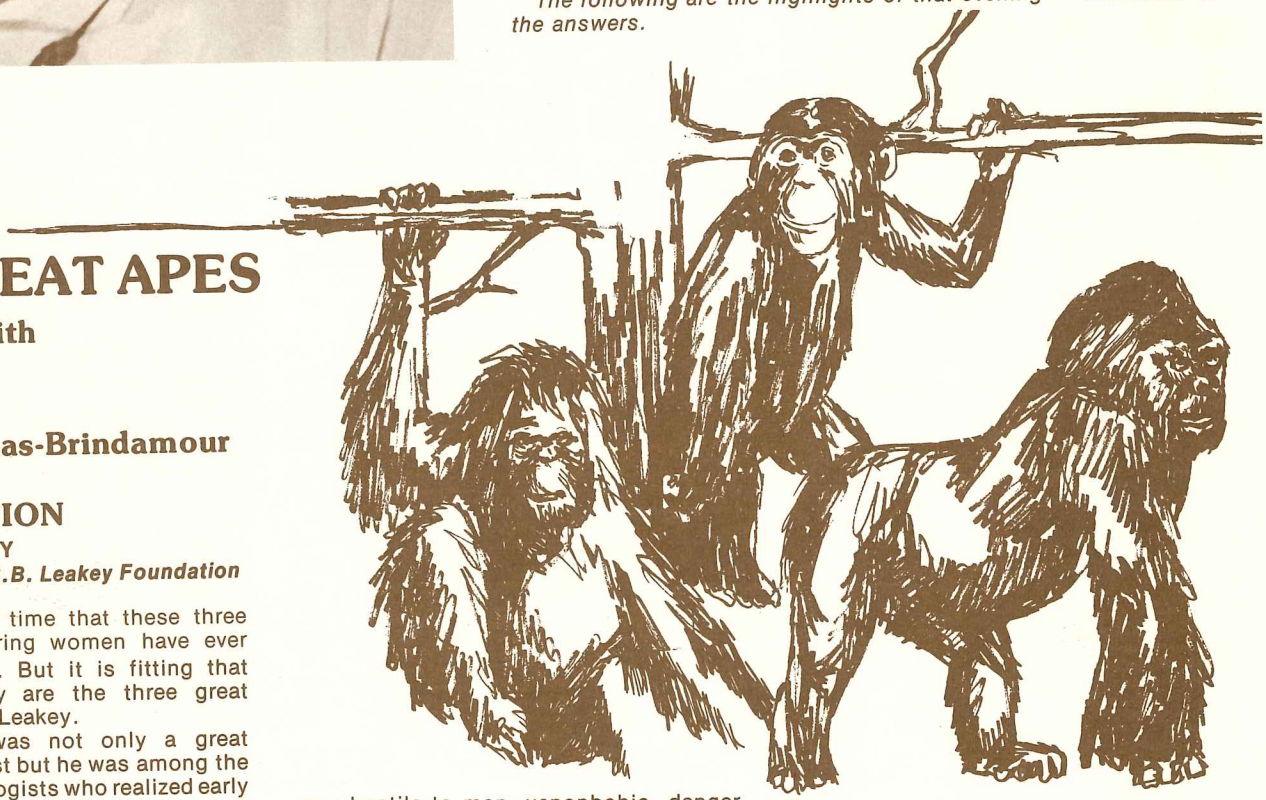
All have committed their scientific careers to the study of man's closest living relatives: the chimpanzee, the gorilla, the orangutan.

All are Leakey Foundation grantees.

All are women: Jane Goodall has been observing wild chimpanzees for the past 15 years; Dian Fossey has tracked the free-ranging mountain gorilla since 1967; Biruté Galdikas-Brindamour has followed the elusive orangutan, the sole Asiatic representative of the great apes, for almost five years.

Why did they choose this life work? What motivated them to opt for the lonely hardships of primate research in the field? What early counsel and guidance from Louis Leakey inspired them to face such ordeals?

The following are the highlights of that evening — and some of the answers.



THE GREAT APES

A Dialogue with Jane Goodall Dian Fossey Biruté Galdikas-Brindamour

INTRODUCTION

GORDON P. GETTY
Vice President, L.S.B. Leakey Foundation

This is the first time that these three gifted and pioneering women have ever appeared together. But it is fitting that they should. They are the three great protégées of Louis Leakey.

Louis Leakey was not only a great paleoanthropologist but he was among the physical anthropologists who realized early in the game that we could never understand human origins until we availed ourselves of the richest model of early man existing in the world today (his surviving relatives), the great apes. And it was his belief that we had to study the behavior of the great apes in the wild as well as in the laboratory.

Good luck struck Louis back in 1959 when an English girl applied to him in Nairobi for the post of secretary. That was Jane Goodall. She went to Gombe Stream in 1960 to begin her now famous chimpanzee study — the longest and richest and most thorough study, I should guess, of any primate species in the wild, and definitely of the great ape which had long been considered very difficult to observe, very hostile to man, xenophobic, dangerous. In 1965 she obtained her Ph.D. in ethology under Robert Hinde at Cambridge.

Dr. Leakey met Dian Fossey in 1963 and they soon agreed that the best thing for Dian and for science was for her to study the mountain gorilla in its natural habitat. No one had ever followed them, except George Schaller, and his study was less than two years old when it was terminated by political events. It was necessary to make a fresh start to see if a longer, more continuous study could be achieved.

Dian volunteered to attempt this work. She began in 1967 and has been there ever since. It has been, I must say, with all respect to George Schaller (and I don't doubt that he would agree with me), the chief source of our knowledge of the mountain gorilla and the first source of our knowledge of the interaction between gorilla groups.

Well, the third part of our story, chronologically, is Biruté Galdikas-Brindamour. In 1971, again pursuant to conversations with Louis Leakey, Biruté and her husband, Rod Brindamour, went to Kalimantan, or Borneo (it was Borneo in 1971), and have studied the orangutan ever since.

Now it is my privilege to introduce the moderator of tonight's discussion: Dr. Donald Lindburg. Dr. Lindburg is associate professor of physical anthropology at UCLA.
the University of California, Los Angeles.

JANE GOODALL

Jane Goodall began her first field studies of chimpanzees in 1960 at Gombe Stream Reserve in Tanzania. It is now the longest and most thorough research study of that species ever made in the wild.

DR. DONALD LINDBURG, *Moderator*
Associate Professor of Physical Anthropology, University of California, Los Angeles

Gordon has laid the foundation very well for us. There is little more that I can add by way of introduction. We are going to present these women in order of seniority — I guess you would say — in terms of years that they have been involved in their research. That means we begin with Jane Goodall.

JANE GOODALL:

I'd like to add one thing to what Gordon Getty said, and that is that it was real genius in Louis to think about doing this: to learn about early man through comparative studies of the great apes. And in fact, it was before 1957 that he began to think of it, because in Cincinnati I met a girl that Louis had offered to go to study chimps long before he offered it to me. And she said she had never stopped being sorry she didn't go.

Louis was way ahead of his contemporary scientists in realizing the value of this kind of research. I think that is something we should all remember.

For me to try to summarize fifteen years of research in fifteen minutes is, clearly, quite impossible. So what I have decided to do is first of all to look back over the years, particularly the early years and share one or two of the moments which to me, personally, were very meaningful.

The first one for me, which I'll never forget as long as I live, was the first time (it was after about eight months) that a group of chimps allowed me to come close and didn't run away. I had been close to chimpanzees before, but only when they didn't know I was there. On this occasion, after creeping through the trees, I got much closer to the group than I had planned. My jungle lore was rather poor, and to my amazement they just sat there — three of them: David Greybeard, Goliath and one female. They watched me, they stared, and they went on grooming. I'll never forget that. It was the first moment of acceptance.

Perhaps another rather wonderful moment for me was, as many of you will probably remember, when David Greybeard came to my camp. There were bananas lying around and he took them. One day, when I was out in the forest, there was a big group of chimps. They all became very nervous, very tense. They were obviously about to disappear into the undergrowth when David Greybeard appeared. He just walked right up to me, pulled at the haversack that I carried my bits and pieces in, opened it up and looked for a banana. The other chimps sat there and you could see their eyes getting very wide — what on earth was this companion of theirs doing? And instead of running away, they sat around and watched. And that was really a second step in the habituation of the chimpanzees.

One of the first things that was exciting, not in a personal, but in a scientific sense, was the first time I saw tool using. I well remember George Schaller visiting Gombe when I had just begun. Great hero. He had been close to gorillas. I couldn't get close to chimps. And he said, well, it will be fantastic if you see an ape in the wild using a tool. And there I was. It was David Greybeard again. I couldn't get really close to him. But through the grass I could see this black shape that I knew was David, sitting on a termite heap and he had these little pieces of grass which he was industriously manipulating. I watched him for about an hour. He was eating. There was my first example of tool use.

Another incident that was incredibly meaningful to me, both scientifically and on a personal level, was the first time I saw what I then called a "rain dance," which we now more properly call a "rain display". Six adult male chimpanzees charging down a green slope, with thunder and lightning and grey sky above. And it was like some primitive people. I thought of Louis then; sitting there watching this display laid on as though for me, as they charged down tearing off these great limbs, dragging them behind them, hurling themselves from the trees and then plodding back up the slope, only to charge down again. I've never seen another exhibition quite like that. Nor have any of the students who followed me to Gombe.

And then, the last thing, which again, was very meaningful to me, but in a rather different way, was when the old female Flo died. She was probably about 45 or 50 years of age. The first female I had really got close to. Her infant, Flint, was the first infant I had been able to study almost day by day throughout the period of his development. And she died — maybe from a heart attack. At any rate, she was very old. She died crossing a stream. She was lying there very peacefully and her now 8½ year old son, Flint, was there with her, sitting on the bank, rather depressed, huddled up.

It was necessary to sit there and see what Flint did. And I shared this with a student who was studying mother-infant behavior at the time. We sat there watching. It was the strangest feeling, sitting there with this female that I had known so well, now dead — so hard to believe that she was dead — just as it was hard to believe that Louis was dead. And there was a very real feeling, just because she was dead, that I've tried to be able to explain — a feeling that I've had since — that the chimpanzee is a creature which is very hard to understand, because it has a great deal of intellectual capability, which we see in the modern captive studies — teaching chimps sign language, teaching them how to form sentences, knowing that they have the ability for abstract conceptions. And yet, they have not developed a language. They are, as it were, imprisoned within themselves. They could, one feels, out in the wild, live a life so much richer, so much more comfortable. And yet they are imprisoned, I think, by lack of language.

Now, to come a little more into the present.

What sort of things are we finding today? What sort of answers are we getting to questions which have gradually been forming themselves over fifteen years of research?

One of the things that is particularly fascinating today is the dominance structure among the adult males. Who will become the alpha male? How does one male rise to the alpha status?

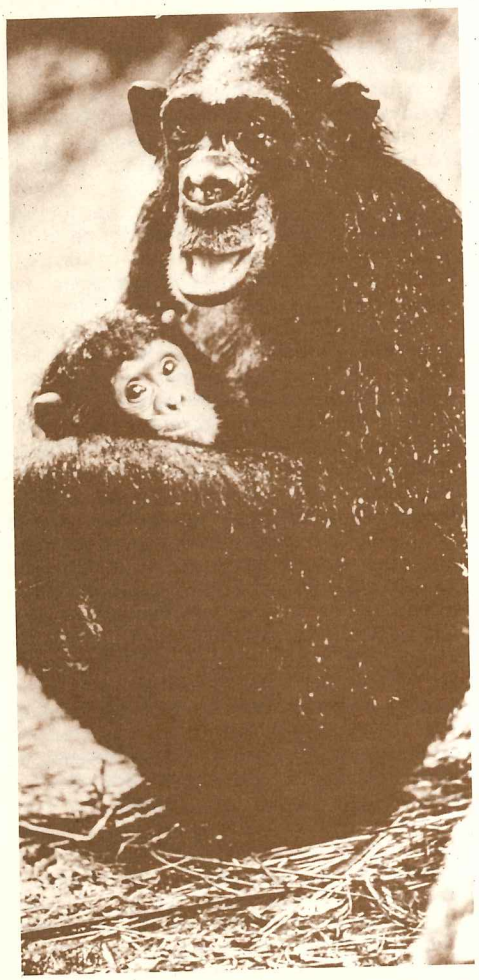
For the last three years it has been Flo's second known son, Figan. He rose to that status with the help of his older brother Faben. Figan only challenged the previous alpha male when his brother Faben was nearby. Then they both would display together and intimidate the previous alpha male, Humphrey. Six months ago Faben disappeared. We don't quite know what's happened to him. But he's no longer seen around the place at Gombe. And Figan is now being challenged by a group of three other high-ranking males: Evered, Sherry, and Satan. It's a little like a betting station at Gombe, with myself, my husband, Derek, and the field assistants laying odds on who is going to be the next alpha male. My money is on Sherry. Sherry has an older brother who tends to back him up, as well. And this is why I think that Sherry, who is big, strong, aggressive and very determined to better his status, will take over from Figan as alpha male.

Secondly, had we stopped our research at Gombe two years ago, we would have had a totally different picture of chimp social structure than the picture we have today, after 15 years. In the last two years we've found what seems to be an outbreak

of violence between two neighboring communities which, until they split a few years ago, were all one community. And now between the members of these two communities there is this terrific brutality and aggression. Males of our main study community go on patrols along the periphery of their home range and from these patrols they may make incursions deep into the core area of a small community to the south. In the past two years they have killed four adults of that community; three males — two in their prime, one very old. They have also killed one old female. Why have they behaved in this way? Why they killed an old male and an old female who can be of no possible reproductive challenge to them, we simply don't know. But these acts of gang brutality, attacks lasting for twenty minutes, have occurred.

At the same time that this has been going on, there have been other attacks on stranger females, also from neighboring communities but not from the south. We don't quite know where they come from. They are encountered within the home range of our main study community. If such a stranger female is encountered, she may be chased and she may be attacked violently. On two occasions these attacks resulted in the killing and subsequent cannibalism of their infants; two infants of about two years of age. Again, we simply don't understand why this takes place. And we don't understand the cannibalism.

The cannibalism is interesting in that chimpanzees are hunters. They frequently hunt young baboons, colobus monkeys, young bushbuck, and young bushpig. And after a hunt, there's this terrific excitement. The males gather around, try to share, try to get a portion of the carcass and usually every scrap of the carcass is eaten. Bones are chewed, skin is often swallowed. But in the cases of cannibalism I referred to, when the infants of stranger females are killed by adult males, then very little is eaten and after awhile the body is abandoned.



Old Flo and little Flint were the first female and the first infant Dr. Goodall was able to get close to for her pioneering study.

One other event which was even less pleasant — again, cannibalism — involved an adult female, Passion, who killed and partially ate the three-week-old infant of another female in the same community. These two females had grown up together; they had always been companions and suddenly for no reason that we can understand, Passio seized Gilka's infant, pulled it away, bit into the infant's skull, killing it instantly, and spent part of the rest of the day feeding on its flesh. Why this is happening, we don't know. It has made us look back over mysterious deaths of newborn infants, previously noted, and we wonder whether perhaps this has happened before; whether it's not such a unique event as it first seemed when it happened.

One last event to mention before my time is up, to sort of counteract what I've been saying: there was another occasion when a large group of our main study community violently attacked a stranger female. But before they attacked her, it was very strange; she went up to them and made submissive gestures — reached out her hand, touched them, showed all sorts of gestures you would think would appease the males of this strong community that we are studying. When she touched one of the adult males, he moved quickly away, picked up a big bunch of leaves and rubbed the place where she had touched him. A few minutes later they began to attack her.

She fell to the ground after her infant (a two-year-old female) had been pulled from her. She had a tug-of-war for the infant with one of the big males, Jomeo, who was down on the ground. He tore the infant from her and rushed up a tree. The alpha male, Figan, ran after him, seized the infant, displayed with it in a very brutal way, smashing it on the branches and then on the ground, and then left it.

Well, now the extraordinary thing is that then up came an adult male, Satan, who picked up this infant, very gently groomed it, and laid it down. Then Fifi's four-year-old infant Freud, who is just a little chap, picked up this infant, held it in the ventral position, groomed it and looked after it for over an hour, following the group while it moved, moving away if anyone else approached, keeping this infant there and nurturing it. Then the adult male, Satan, the same one who rubbed himself with leaves, the same one who had picked up the infant after Figan left it; came and displayed at Freud until Freud dropped the infant. Then Satan picked up the infant and carried it for nearly two hours — groomed it, carried it carefully up the tree. It was still alive. Then he laid it down on the ground. An adolescent male picked it up, carried it for ten minutes, and then the whole group moved off and left it on the ground. It died in the middle of that night as a result of its injuries.

I want to end on this point: although there is a brutality that we don't understand, there can also be this care, this nurturing of an infant who is a stranger to the community.

DIAN FOSSEY

Dian Fossey's study of the mountain gorrilla reveals they have a shy and gentle nature. Here she reassures Peanuts by scratching herself vigorously as he does.

DR. LINDBURG:

Thank you Jane.

We shall hear next from Dian Fossey who will bring us the latest word on the social life of mountain gorillas from her study site in the Virunga mountains of Rwanda in central Africa.

I am sure you all must realize that other people have gone off and studied the great apes. But what is remarkable about our three guests this evening is that they have spent so many years at it. Dian, it is a pleasure to welcome you.

DIAN FOSSEY:

Dr. Leakey was so very open-minded when I began this study. I am an occupational therapist. I love Africa and I've loved animals all my life, as Jane did. I had no training for this work. Dr. Leakey said: "I want open minds, I don't want preconceived opinions. I just want people to go out there and use their eyes and look." And he would test you every now and then. Like in front of the museum in Nairobi: "What do you see there?" he'd ask. And I would look and I would see a spider web, thinking myself very, very observant. Well, he would see a spider web, a bee, a dead fly — he would see about twenty odd things when I would see one. So I learned and learned to use my eyes. And that's what he wanted. With that point of view in mind (I'm sure this was also true of Jane), I wasn't inhibited by saying "this happened" and "that happened" — why? I wanted to learn and I presented my data in that manner, not with preconceived ideas.

Dr. Schaller's work was wonderful with the gorilla, as far as it went. It was expert and Dr. Leakey felt this very deeply. But he wanted to know more.

Dr. Schaller felt that gorilla group structures were stable: there was a silverback male, the adult male; and a certain number of females and their offspring. Schaller felt this was the stable unit, altered only by birth and death and occasional transfers of other animals into the group.

Dr. Leakey said that he didn't think so. But he wasn't adamant about it. Again it was: "Use your eyes and see what you will find!" So I said, "Well, I think they are stable, too." After all, I had had six months experience; I was an authority.

Before he died, he was to find out that one of the most interesting aspects of gorilla social organization is the transfer process. He knew (I didn't know, but of course, I thought I knew), that to work against inbreeding, you've got to have fresh blood come into your population and certain others go out.

Now 13% of all my contacts (we are talking about a seven-year period), have involved this transferring; males taking females from other groups. Never, never does a male transfer — it's always a young female or a very, very young adult female. Is this economically profitable? In the last two years, I have begun to think "no." But this is again a short-term opinion, isn't it? Only in the last three years has this happened regularly.

We have seen 22 transfer processes involving 17 females, some of them a little bit more ambitious than others — they go from group to group to group. They seem to be taken by the silverbacks. They do not appear to go willingly.

I say it is not economical because we have three known infanticides as a result of this. The silverbacks kill the infant of a female before they take her into their group. There are three known cases of such infanticides and three suspected cases.

The mortality rate resulting from interactions is responsible for 19% of all deaths, including those of very old, diseased animals. Interactions have resulted in 47% of all the wounds. One does begin to wonder what the purpose of interaction is when they are trying to bring in new blood to breed with while they are killing off the young stock. I do not have the answer to this.

These known cases of substantiated infanticide are a big loss to our population. I work with five groups and they consist of 47 individuals. To have three known, and possibly six total, dead, just because of interactions is very, very difficult for me to comprehend.

There are also the wounding processes inflicted on the males. This I don't understand. Why do certain of the male gorillas, the silverbacks, the leaders of each group, receive a substantial amount of deep serious wounds from the interactions?

The last bit of news that came out of camp also resulted from an interaction. It is quite similar to what Jane just told you. And that is cannibalism.

This (*showing a package*) contains 133 little fragments of a five month old unsexed infant. The infant's name is Banjo. The infant was the offspring of a primipara young female. She is the only young female out of 11 not to have transferred out of her group. She became an adult in March, 1974. She stayed in her group — I was quite surprised. And she was the only one that conceived within her home group, the group in which she was born. Her mother was in the group. Her mother had another infant.

It was my decision to leave the group, just a little beyond the middle of March, because they were getting too habituated to us. I mean, they were standing on top of us and beating on our backs, stealing our camera equipment, and all that. I thought: we are affecting their behavior too much and I like my Nikon. So we left them alone for a week.

Well, it was a very stupid decision, with hindthought. But how can one determine these things in advance? We concentrated on two other groups in the study area who were also involved in transfer processes.

Then we went back to this first group. There was no baby. Banjo was missing. We searched and we searched and truly, we really searched that terrain, the entire kilometer and a quarter, during a five-day period, without finding the body anywhere. It was a bit of a puzzle. This had happened three times before when a young baby disappeared. No body to be found. Not liking my decision, I asked the Africans to go with me and collect the dung.

I brought a lot of dung back to camp — about 400 pounds in all — over a two-week period. And we started straining the dung and there was Banjo!

This was a unique find and this is the kind of thing one shares with Dr. Leakey. He's there to know about that, somehow he's there! It's an horrendous find in some ways, and I can't give the reason for it. The bits and pieces of this baby: hair, bone fragments, teeth, shattered first teeth, crushed teeth, were found in the dung of only two individuals. One was the dominant alpha female of the group, Group 5. The death was assumed to have occurred on March 27. The dominant female, Effie, gave birth on April 1. She gave birth to a very fine, healthy baby. 57 pieces of the 133 were found in Effie's dung. Bone fragments, 69 of them, were found in her older son's and only 11 are unknown.

Only these two individuals were involved in the eating of the baby Banjo.

When we saw there was no Banjo we constantly stayed with the group at the risk of losing the Nikon and everything else. We found that the mother of Banjo, the primipara female, was reverting almost into childhood herself. She was swinging from the trees, playing like a two-year-old, with Puck who will be the dominant animal in that group as the study unfolds.

The whole thing is quite a mystery. I am beginning to wonder, as Jane also mentioned, if that wasn't also the case with the other three missing infants, whose bodies we could never find despite really intensive searching of the trail. I had never thought of going through their dung before that. And that is again, what Dr. Leakey means by keeping your mind open, and I like that kind of instruction. It was a wonderful way to begin the study, and to continue it.

Photo by Robert M. Campbell, © National Geographic Society

Coco eats blackberry leaves. Gorillas also eat wild celery, thistles, nettles and a vine called Galium. Recent discoveries by Ms. Fossey may prove they even eat meat.

BIRUTÉ GALDIKAS-BRINDAMOUR

Biruté Galdikas-Brindamour started her orangutan field research in the jungles of Indonesia less than five years ago, but her findings are already challenging many widely held beliefs about that primate.

DR. LINDBURG:

Our focus now will shift to southeast Asia as we hear from Biruté Galdikas-Brindamour and her experiences with the elusive "person-of-the-forest" — the orangutan.

Biruté has invested a total of over 5,000 hours observing these animals. In addition to this activity she has been involved in rehabilitation efforts.

I might add, finally, that Biruté is a graduate student working on her doctorate at the University of California, Los Angeles. She has been ably assisted in her efforts at Kalimantan by her husband Rod, as

photographer and administrative expert and, I am sure, a very important source of moral support. It is a pleasure to welcome you.

BIRUTÉ GALDIKAS-BRINDAMOUR:

Compared to the amount of time that Jane and Dian have spent in field work on their respective apes, 4½ years is very little. But it is the longest uninterrupted study on the orangutan yet undertaken.

When I first left for the field, Dr. Leakey said to me, "I will give you ten years to make contact with the orangutan. If you don't do it in ten years," he said, "I won't support you any longer." Fortunately, it didn't take ten years to learn about the orangutan. I began to learn very quickly.

If you open a textbook on primatology it will tell you that primates are social. That's one of the things that makes them primates. Well, it doesn't make an orangutan — at least not an adult orangutan. One of the things that intrigues us is why this is so. I think the answer is related to the fact that orangutans live in a particular type of lowland forest, with a particular type of scattering of food resources in the environment. One of the goals of our research is to try to explicate why orangutan adaptation has necessitated that the animals in adulthood be solitary.

In textbooks you will also read that orangutans are essentially arboreal. Now this is true. Yet, one of the most memorable things that happened during my first six months in the field was walking across an abandoned rice field and finding a sub-adult male, I presume, crossing it. It was a very dramatic moment for me. Afterwards I felt like rushing back to camp and sending a telegram to everybody that I could think of: "Guess what? Orangutans are capable of leaving the tropical rain forest. They are not totally restricted to it!"

Nick is the most habituated adult male that we have. We achieved this habituation, Rod and I, by following him continuously for up to 65 days at a time, from dawn to dusk. And as we got to know Nick, we discovered — by this time, not so much to our surprise — that whenever Nick had to travel any distance, he would come down to the ground and walk. We discovered this relatively early. But it wasn't until 1975 when Nick was totally habituated and we were able to approach within two or three meters of him, that we discovered that this wild orangutan male would actually go out into the shallow lake near our camp and eat reeds. It took us four years to discover that, I think simply because until that time Nick was not yet sufficiently accustomed to our presence to leave the security of the tropical rain forest.

Another of the exciting things during our first two years of research, was that we discovered an orangutan ground nest. We were quite elated. It was such an anomalous thing, that we didn't quite know what to make of it. Then we discovered a second ground nest. And in our third year of research, I was most fortunate to see a sub-adult male during the late afternoon, lie down on the ground, bend a sapling under him and sleep for about 45 minutes. I scarcely believed that it was happening. It indicated that while orangutans do generally make tree nests, when the ground is safe enough for them — or comfortable enough for them — they will occasionally sleep on the forest floor.

I keep repeating that adult orangutans are solitary. The reason I say this is because over the years it became gradually apparent that independent, immature orangutans and sub-adult males tended to be considerably more social than the asocial adults. It was actually a great shock when I began to analyze my data recently and discovered that an immature female, Georgina, spent over 75% of her time in contact with other orangutan units. The statistics are revealing, but we had been there long enough to observe change from an adolescent female to an adult, a fully mature female adult, and what happened with Georgina must be typical.

One of the most interesting things to me over the past four years has been to examine the way in which the dominance has been worked out among the adult males in the study area.

Now, as I mentioned, orangutan adults rarely interact with one another; indeed they rarely come into contact with one another. The only kind of relationship the adult male will ever form is with a sexually estrus female. In 4½ years we have only seen two lone males, not in the company of females, encounter each other only two times. And in both cases, there was avoidance; one fled and the other one fled — no physical contact.

Orangutans may not be as solitary as originally thought and though essentially arboreal, they are quite capable of ground-walking. These are just some of the many facts now being uncovered as a result of the field research of Biruté Galdikas-Brindamour.

When we first knew Georgina she often travelled and associated with two smaller adolescent females. They sometimes played, touched hands, sat close together in the trees, even groomed. Now, the total amount of physical contact between them in four days might amount to two or three minutes. But still, for wild orangutans, this was a very friendly relationship.

All this changed when Georgina became pregnant for the first time. Suddenly she became nasty, surly, vicious, mean and, for no apparent reason that we could ever discern, she started attacking these adolescent females whenever they attempted to associate with her. And very soon, within months after she had given birth, these females began avoiding her.

We define a sub-adult male as one who is intermediate in size between the fully mature females and the fully mature males (who are twice the size of the adult female). The sub-adult male is beginning the development of secondary sexual characteristics such as cheek pads and the bulbous throat pouch which would indicate that he is a full adult male.

I was again somewhat shocked to discover that over 50% of the time that we had observed sub-adult males, they were in contact with another orangutan unit. But again, something must happen to these males when they reach maturity. The change is so abrupt, and so thorough, that it must be mediated through physiological channels.

Throatpouch was actually the first male that we habituated. Jane talked about the moment of first acceptance. With us it came relatively early. It came during our first year of field work after we had followed Throatpouch continuously for — it was like two weeks, non-stop. We had known him for a number of months already. And he was up in a tree and we were sitting below it. And then suddenly he just came down the trunk of the tree and looked at us. I thought, "Well — it's all over. It's finished — we're going to get attacked!" But he just totally ignored us and turned his back to us and began eating termites which he had dug up by clawing the ground with his hand.

We observed Throatpouch all of 1972. During 1972 he never left an area of approximately five square kilometers near our main camp. We knew he was there — we had learned to recognize his call. During 1972 he consorted with a sexually estrus female, a very old one, very senile and one that we had never succeeded in habituating. She's always been a very odd bird. Her name was Priscilla. We observed them travelling together in March and in April. Then we observed Throatpouch contacting Priscilla in June, but it appeared as though Priscilla wasn't interested and the association only lasted a few hours. Then in August of 1972, when we began following Throatpouch very intensively, he was almost totally solitary. In 23 days that we followed him continuously, he only met

up with orangutans four times, and the sum total of those encounters maybe added up to a few hours. We have seen Throatpouch fight another mature male that had approached him and Priscilla. The combat lasted 20-25 minutes, merely consisting of a sort of grappling and wrestling. As far as we could see there was no blood and no injuries from the fight. But we had noticed that Throatpouch had two stiff fingers. And as we later became more cognizant of these things, we discovered that almost every single adult male that we ever encountered in the study area had some sort of anomaly in his physical make-up. Either fingers were missing, fingers were stiff, toes were stiff, or there were old scars or old wounds. And it became apparent to us that although we rarely saw combats — so far we've seen only two in 4½ years and both have involved estrus females — that these sort of combats must occur more often than we know.

In 1973, Throatpouch disappeared. Just before this happened, we saw the two male orangutans (Throatpouch and Tusk) encounter one another. We had always assumed that Throatpouch was the most dominant male in this particular part of the study area. But, after initially moving very rapidly toward Tusk, he ran away. He came down to the ground and fled and Tusk just sat there as though he were hiding. Shortly thereafter, Throatpouch vanished. Tusk didn't stay around very long either. And though several males came through Throatpouch's home range, none of them stayed, until Nick came. Nick, as far as we know, once he arrived (we had never seen him before) took over Throatpouch's old home range. Sometime after he arrived in that particular portion of the study area, Nick assumed consortship with Noisy. Noisy is an adolescent female.

The relationship was definitely instigated by Noisy. She would follow him around. She would touch him. She would do various things to his anatomy. A pattern was set up that lasted over a year, almost precisely a year actually, in which during her periods of estrus, which were spaced a month to a month and a half apart, Noisy would seek out Nick and they would travel together for up to ten days and on two or three of those days — up to five days — they would mate.

We don't know whether Noisy is pregnant or not, but within the last few months she has not been consorting with Nick, so we suspect that she might be.

One day, about two years after Throatpouch disappeared, we began to hear strange calls in Nick's home range. We started searching for the callers and one morning we found Throatpouch! He looked quite fit. He assumed residence with Nick in the same home range. It became apparent that the orangutan males who were in this particular home range had a definite dominance order.

Now, we have known Ralph for many years, and all these years he had occasionally appeared to the south of Nick's home range. We had never seen him anywhere near the home range shared by Nick and Throatpouch.

One day just two months ago, we found Nick limping. He wasn't calling. Usually adult males, such as Nick, give long calls at least one or twice a day. But there was another male in the vicinity calling. It was Ralph. Following him some days later, I found Ralph had wounds on his back, a cut on his cheek pad, and a small cut on his finger. Those are similar to the sort of things Dian showed you in the gorillas. Obviously, Ralph had been in a fight. He had emerged the victor, but I really don't understand how, from his wounds. Ralph was now in Nick's home range.

I was following Ralph one day when Beth showed up. We had known Beth since 1971. She had always struck us as extremely meek, mild, retiring. The kind of individual that raced out of trees when any other orangutan approached, let alone an adult male.

It was with great shock and amazement that I watched as Beth approached, came straight over to Ralph, and shook a vine in his face. When that didn't work, she patted his stomach and tweaked a certain part of his anatomy. Normally orangs do not behave like that. It was clear what Beth wanted. She was in estrus. This was the first time we had seen what goes on in an adult male and an adult female relationship. It was clear that the adult female, like the eager beaver adolescent females, exercised a great deal of freedom of choice in whom she would mate with.

Soon afterwards an orangutan called in the distance and Ralph charged over there. I heard the most horrible sounds emanating from the trees. Ralph was fighting with another male. It was Nick who ran away. The next day Ralph and Beth began their consortship and mating.

One of the things that I was very interested in when I began my research in Kalimantan, was whether or not wild orangutans used tools. I had watched orangutans in zoos and I became convinced that they were just as intelligent as chimps and gorillas. I was almost positive that I would discover tool using among wild orangutans if I persevered long enough. But it was not to be, or hasn't yet come about. When I said this to Jane, she said, "Maybe you haven't waited long enough."

We have seen cannibalism among chimps, we have seen it among gorillas, which is an amazing breakthrough, considering what we knew about gorillas before. Having studied orangutans this long, I really don't feel that we will ever see anything similar in orangutans, because their adaptation is so different. They are essentially solitary animals. I see Jane smiling. She says, "Just wait!"

QUESTION AND ANSWER SESSION

Awaiting the start of the evening's progam are (l to r): Foundation vice president Gordon Getty, Biruté Galdikas Brindamour, Dian Fossey, Jane Goodall, and moderator Dr. Donald Lindburg. More than 100 Leakey Foundation trustees, fellows and friends attended.

Q. *What is it that keeps you going at it for so long? And what was it about Louis Leakey that inspired you to do this?*

A. GOODALL:

Louis Leakey helped me to realize my ideals. Until I met him, it seemed that the thing I wanted to do most of all was totally beyond my reach. As I said, it was his influence in getting money to start me off, with no qualifications, that enabled me to get out there.

The reason for carrying on with the research at Gombe is simple. It's the desire to know. It is the same sort of motivation that set me going in the field to start with. The more we learn about the chimpanzees, the more we know there is to learn. We're just beginning to find out some of the answers. When you're dealing with an animal who lives to about 50 years, and you find that each one is so different in his personality, in his characteristics, you search more and more for environmental influences, for events occurring in his lifetime that affect his behavior. And you realize that less and less of his behavior is dictated by the heritage he's born with — his genetic inheritance. And so only now, we're beginning to see the results of influences in his early life — the kind of mother he had, the kind of family he had.

Our major concern for the next 15 years is to learn more about the communities neighboring ours. These communities are comprised of individuals who, at the moment, run away. They're frightened of us. And once we can habituate them to the same extent as our main study community and the small fragment community that's moved to the south, then we shall begin to understand a little more about these extraordinary inter-community conflicts and perhaps the infanticide, too.

GALDIKAS-BRINDAMOUR:

Well, there's very little I can add. I mean, I think what keeps my husband, Rod and me going now, is just simple curiosity. We have to find out what's going to happen next. And as to Dr. Leakey, what Jane said is applicable to us. I always wanted to study orangutans, but it didn't seem possible until I met Dr. Leakey and then he made it possible. It's just the sort of person

he was. He believed that the impossible was possible. He never doubted it.

FOSSEY:

I want to say "ditto" to that.

And there is no way of stopping because he never stopped. One doesn't think of being a quitter. You just want to keep on going. There's so much to be learned. If he had stopped after his first 32 odd years, where would we be now? So we've got a few years to go, don't worry.

Q. *I'd like to ask Dian if she ever saw any aggression by a mother towards her baby? And of the various kinds of aggression towards young — is there more toward male or female gorillas?*

A. FOSSEY:

Only mild disciplinary measures for the most part, consisting of mock biting when the mother wants to get her baby off her back or to stop a sucking bout, and this is really quite mild. Fast turn of the head and a nip at the baby, usually near its facial area, or the "pig grunting" sound to the infant to recall it, or again to get it off, out of body contact.

I have seen no sexual differences, but this could be partially due to observer error because the majority of all but one of our infants are males. Most of my observation hours on infant behavior are concerned with males.

Q. *At this point, I think we all suspect that there are other students and other scientists involved with all of you in the field. It might be interesting to know what the continuing vision is and the need for continuing support such as the Leakey Foundation encourages?*

A. GALDIKAS-BRINDAMOUR:

We hope to eventually have a permanent field station at Tanjung Puting Reserve. The first step toward this goal has been taking Indonesian students as research assistants. The first students studied orangutans with us. The next group of students began their own work on gibbons and leaf eating monkeys and I'm most pleased because one of these gibbon students, who spent six months with us, recently came back for a second time. We hope to be able to push this so that he, or one of our other students, becomes the first Indonesian primatologist. It may come as a total shock to you, but there is not one single Indonesian who is a primatologist or who is interested in studying primates.

Our eventual aim is to build up a station that will be permanent and that will have a very substantial native element in it, so that if anything happens to us, as foreigners, or if we're forced to leave by an accident or anything else, that the work will go on without us. This is my vision: that as the years go on we will become superficial; that the work will be carried forward by our research assistants who have received the training and who are qualified to do it.

GOODALL:

As I have mentioned earlier, we now have Gombe operated on a day-to-day basis by a team of Tanzanian staff. Like Birute, we've been involving the Tanzanians over many years, thank goodness, because as a result of the kidnapping, the foreign students — that is, the non-Tanzanian students — have had to leave. Even I am no longer able to live there all the time, although I visit at regular intervals as often as possible, with my husband, Derek Bryceson.

Because we've been training these Tanzanians over the past five to eight years, depending how long we've had each one, they are able to maintain the records at Gombe in the same way as they had been doing, but with added responsibility. And they have done this very well indeed. I'm delighted with the way they are doing it. Luckily, we're able to be in radio contact with them every day from Dar-es-Salaam.

The problem for us is not the maintenance of the long-term records. If any of you have seen our annual report for last year, I think you'll see the quality of information that we are getting from the Tanzanian team.

Our problem is funding. We were operating on a scientific research grant, but because there are no university trained personnel in residence, this kind of money is much harder to get. The purpose of this lecture tour that we're on now is purely and simply to raise funds for Gombe, because as of the end of October there is no more money from the previous grant, and we need to raise about $20,000 for 1977.

GALDIKAS-BRINDAMOUR:

I might add that this is something that is most difficult in Indonesia, also. It was almost impossible to obtain money from sources within Indonesia because something like primatology or even biological research has such a low priority. Whatever happens at Tanjung Puting Reserve, the support will have to come mainly from the United States. We have received only a tiny bit of money from Holland.

FOSSEY:

The long-term aims of our camp are — I call it "our" because it does not belong to me. It belongs to the Africans and the students — anyone who is there. It's not *my* camp but *our* camp. We are all there to continue our protection of the area, doing poachers. If I habituate my gorillas to the Africans attached to This kind of work was never done before anywhere in this section of the Virunga Mountains. We work with the park guards. This is absolutely necessary for the remaining gorilla population. WIthin all the Virunga Mountains, there are only 269 mountain gorillas left. Probably less three, last month. OK, that's not very pleasant, but it's factual.

Our study aims are census work, to do recounts, rechecks and the continuing behavioral studies.

At this moment, a specific aim is to raise $3,000 for a French couple who are assisting with census and behavioral studies, do wonderful work on patrols, and photography. They're doing just about everything five people could do.

I think in terms of year to year, because the gorillas do not accept Africans. Because of their knowledge of poachers, the gorillas are afraid of Africans. They know them only as poachers. If I habituate my gorillas to the Africans, attached to the project, then I am making a big mistake for the sake of a gorilla. My people know how to trap, they know how to count nests, they know how to type and keep very simple notes in their local language. They give reports to the local government. They're very much a part of our work. Without the Africans I could not exist. But they do not work with the gorillas, nor do I plan ever to have them work with the gorillas.

GALDIKAS-BRINDAMOUR:

I'm very interested in this. What will happen if any problem arises?

FOSSEY:

I'll move ten minutes away and I'll be in Zaire and work with the same animals.

GALDIKAS-BRINDAMOUR:

The thing we must work toward is a situation in which the local people realize the enormously rich heritage that they have in their own country concerning their wildlife. Then wildlife is protected. Then we don't have to worry about it.

GOODALL:

Quite right. I think we're very lucky in Tanzania because the Tanzanians are appreciating their wildlife and they are protecting it. Very great strides are being taken. A lot of it thanks to my husband, Derek Bryceson. He's director of parks for the government of Tanzania.

Q. *Are there signs among the Tanzanians working with the chimpanzees that they develop something of the warmth and response to the individual that's obvious in yourself, or is it quite a different reaction?*

A. GOODALL:

No, it's absolutely the same. We've had students from the University and they're developing it. They arrive, thinking we're all a bit queer, but it's something to do on the holidays and get some money. Within a few weeks they're joining in the conversations in the evening about what this chimp's done and what the baboons do, etc. They become incredibly involved. At the moment there are bets being placed among the field assistants as to which chimp is going to become alpha male. They discuss the family life and what factors might be involved. Really, it's very, very nice.

A. DR. LINDBURG:

I'm sure there are many more questions, but regrettably I think we must stop. Will you join me in our thanks for this most exciting and unique evening.

News in Brief

10 RECEIVE FOUNDATION GRANTS TO ATTEND NICE CONFERENCE

The Foundation approved a request for travel and lodging costs for ten scientists who were invited to participate in the September 9-16, 1976 Paleontological, Anthropological and Archeological Pan-European Conference sponsored by the French government at the University of Nice under the direction of Dr. Henri de Lumley of the Musée de l'Homme, Paris.

The scientists are: Dr. F. Clark Howell, Dr. Donald C. Johanson, Dr. Glynn Ll. Isaac, Dr. J.W.K. Harris, Dr. J. Desmond Clark, Dr. J. Onyango-Abuje, Dr. S.C. Savage, Dr. J. Harbich, Dr. Bernard Wood and Dr. Andrew Hill.

CORPORATE APPEAL PROGRAM BEGINS

The first of a series of corporate appeal presentations is expected to be initiated in late October, according to development committee chairmen, Gordon Getty and Mason Phelps. Slide materials and a portfolio of Foundation facts and data on the science and grants program were completed early this fall. Work on the program began in the spring of 1976 under the direction of trustee Mason Phelps.

This will be the first time that the Leakey Foundation has invited the participation of corporations in the Foundation's world-wide grant program. It is expected to broaden the base of Foundation support within the business and industrial community and provide an opportunity for business leaders to share in the Foundation's crucial research efforts into man's origins, his behavior and survival.

F.R.O.M. SCHEDULES SYMPOSIUM, MARCH 4-6

The Foundation for Research into the Origin of Man will hold its second annual symposium March 4 through 6, 1977. It is to be co-sponsored by University Extension of the University of California, Davis, Ca. and will be held on the Davis campus.

Seven outstanding scientists concerned with research into man's origin will describe and compare their finds from the 1976-77 field season. They are Garniss Curtis, Glynn Isaac, Donald Johanson, Owen Lovejoy, David Pilbeam, Alan Walker and Richard Leakey. Mr. Leakey, who is chairman of F.R.O.M., will give the key-note lecture on March 4.

For further information and registration contact University Extension, University of California, Davis, Ca. 95616.

JAMES OLDS, CALTECH PROFESSOR, DIES AT 54

Dr. James Olds, Bing Professor of behavioral biology at the California Institute of Technology and internationally known for his research on the brain, has died as the result of a swimming accident at Laguna Beach on August 21.

Dr. Olds, who was 54, joined the Caltech faculty in 1969 and was a member of the National Academy of Sciences.

The Leakey Foundation was honored by Dr. Olds' distinguished participation in its 1974 symposium, "IN SEARCH OF MAN".

FOUNDATION TO OFFER GRADUATE SCHOLARSHIP

The science and grants committee of the Leakey Foundation in its continuing commitment to encourage the education of students in anthropology and archeology, is currently reviewing candidates from eastern and southern Africa where there are almost no trained Africans in these fields. The committee will award a $3,000 scholarship grant to one of these students in 1977. Funds for this worthy project are urgently needed and are expected to be allocated from contributions made by Foundation members between now and the end of the year, if the student is to be funded.

This would be the fourth scholarship grant given an African student for special graduate studies. The Foundation expects to select two more qualified Africans for scholarships before the end of 1977 but additional funds needed to continue this special grant program are still being sought.

Dr. John Onyango-Abuje, now on the staff of the National Museums of Kenya, attended the University of California at Berkeley graduate school and was funded for the first year of his doctoral work in Kenya with grants from the Foundation.

Yusuf M. Juwayeyi, a Malawi student, has just completed his first year of graduate studies in archeology at the University of California at Berkeley and has participated in an excavation field school at the University of Arizona with Foundation support.

Tepilit Ole Saitoti enrolled this fall at the University of Michigan's graduate school in wildlife management with scholarship support by the Leakey Foundation. When Mr. Saitoti, a Masai, returns to his homeland next summer, he plans to do ecological and conservation work among his own people.

NEW FELLOWS

The Leakey Foundation is proud to welcome 11 new fellows to its membership roster.

They are: Dr. and Mrs. Joseph Bernstein, San Francisco, Ca.; Mr. and Mrs. Donald A. Brody, Westlake Village, Ca.; Mrs. Edward T. Foley, Pasadena, Ca.; Mr. and Mrs. David F. Friedman, Los Angeles, Ca.;Ms. Anne C. Getty, Corona del Mar, Ca.;Mr. and Mrs. Fred Heidrick, Woodland, Ca.; Mr. and Mrs. Joe Heidrick, Woodland, Ca.; Dr. William B. Lee, Pasadena, Ca.; Mr. Gilbert MacKay, New York, N.Y.; Mr. and Mrs. Richard W. Muir, Encino, Ca.; Mr. Jeremiah Sullivan, San Diego, Ca.

Fellows of the Foundation now total 252 members.

INAUGURAL CONFERENCE OF WEST AFRICAN ARCHEOLOGISTS

An inaugural conference of the West African Archeology Association is being planned for late December 1976 on the Enugu campus of the University of Nigeria. The association's objectives will be to promote the study of the archeological history of West African peoples as well as the study of archeology in West Africa.

The initial planning meeting of concerned archeologists, mainly from Ghana and Nigeria was held this past spring at the Ahmadu Bello University of Nigeria under the chairmanship of Professor Thurstan Shaw.

For further information write: Dr. F.N. Anozie, Secretary, Steering Committee at the University of Nigeria, Department of History and Archeology, Nsukka.

YERKES CENTENNIAL CONFERENCE, OCT. 26-27

In commemoration of the 100th anniversary of the birth of psychologist Robert M. Yerkes, the Yerkes Primate Research Center of Atlanta, Ga. is holding a two-day centennial conference which is expected to draw some 150 scientists from all over the world.

Scheduled October 26 and 27 at the Sheraton Biltmore Hotel in Atlanta, the program will include sessions on the history of research on the great apes, communication and language in apes, chimpanzees in biomedical research, and a a session on comparative perspectives.

Among the distinguished scientists who will participate are: Drs. Sherwood Washburn, Austin Riesen, Duane Rumbaugh, Larry Byrd.

notes

A contingent of more than 20 Leakey Foundation trustees and fellows are expected to attend the World Wildlife Congress in San Francisco, November 28 - Dec. 1. They include: Foundation president Edwin S. Munger, executive director Mrs. Mary Pechanec, vice presidents Robert Beck and Gordon Getty, treasurer Mrs. Arnold Travis, trustee Mrs. Max K. Jamison and fellows Mrs. James Stewart, Mrs. Kenneth Leventhal, Mrs. Jean C. Schwarzenbach, Mrs. Brawner Ralphs, Mrs. Janice Seaman.

*****

A nominating committee has been appointed to propose a slate of executive officers for the 1976-77 Foundation year. Heading the committee is Mrs. Ronald Pelosi with Mrs. Max K. Jamison and Lawrence Barker, Jr. assisting. The committee will also undertake to nominate new additions to the board of trustees. Elections are scheduled for the December 4 annual meeting.

*****

The possibility of Leakey Foundation symposiums in the Denver/Boulder area and in San Diego are now under consideration for spring 1977, Mrs. Ronald Pelosi, Foundation symposium committee chairwoman reports.

*****

Grant SPOTLIGHT

The grant program of the Leakey Foundation, under the guidance of 16 distinguished scientists who make up the Foundation's science and grants committee, depends upon public support for its success. Membership in the Foundation and special contributions (even the smallest donation) directly assist vital international research into man's origins. Won't you help? Send a contribution to the Leakey Foundation **today!**

The following briefs describe several grants which the Leakey Foundation recently approved for support. They vary from world-famous archeological explorations to unusual and scholarly book projects in London, England and Berkeley, Ca.; from new primate studies to be done on the macaques to an on-going anthropological research study on West African culture and history --- but each represents a distinguished effort by dedicated scientists to bring new knowledge and perspective and to shed new light and understanding on our origins, our behavior and our future.

Elizabeth Meyerhoff $2,928 needed
West Pokot study, Kenya

Elizabeth Meyerhoff received a launching grant of $1000 from the Foundation to continue her study of the West Pokot tribe of Kenya in July 1975. Elizabeth's request for emergency supplemental funding came in a letter this past July, 1976, in which she says in part, "I have finally exhausted the initial $1000 ---the last few shillings were spent on a back tire for the Piki-Piki (motorbike) . . .the tire grip had worn smooth. I live more and more Pokot-like, eating the weeds which I gather, or on very special occasions, just after the evening rain, on flying termites. I have dug three farms (about a half-acre each) and planted maize and vegetables. There has been very little rain. It is extremely depressing to see the maize dying ...if there is no rain there will be widespread hunger and death. We can only hope ..."

Elizabeth's urgent request will provide for daily needs to sustain her and insure the continuity of her three-year research study on the culture of the West Pokot, since time is short. A road is being built through Pokot land which will bring urban ways and could wipe out all traces of the history, culture, and tribal lifestyle of these people.

Randall L. Susman $1,543 needed
Fossil hominid hand study

Functional morphological studies of fossil post-crania are of particular importance to paleoanthropologists and evolutionary morphologists concerned with hominoid evolutionary pathways and events between ape and human evolution.

There have been numerous studies recently of the wrist, elbow, shoulder, hip, knee and ankle. These studies have contributed to our knowledge of the maintenance behavior of these fossil forms. To date, however, there has been no comparable study aimed at elucidating the functional morphology of hominoid manual digital rays. No specimens have been subjected to a comprehensive multi-variate and biochemical analysis.

A doctoral candidate at the University of Chicago, Mr. Susman's grant request is for travel to European and East African institutions to photograph, x-ray and analyze fossil hominoid manual rays. It should prove valuable in further understanding the locomotion and manipulatory capacities of fossil Hominoidea.

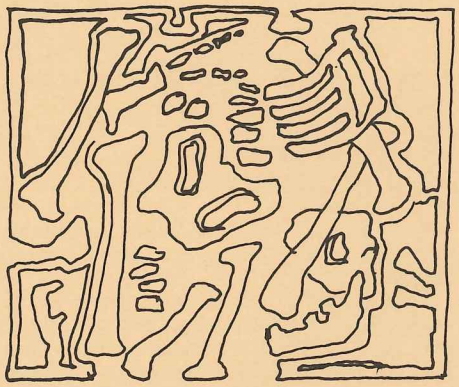
Sherwood Washburn $6,000 needed
Research fellowship for senior professor

Dr. Sherwood Washburn, honorary University Professor at the University of California, Berkeley, and world-renowned authority on human evolution, is one of the few leading anthropologists to draw upon his own research and that of others to build a consistent theory of human physical and cultural evolution, incorporating the latest findings in a field where new evidence has been appearing rapidly.

Since the 1950's he has been one step ahead of the field in recognizing the importance of primate behavior studies and biochemical evidence of evolution.

His own continuing research is in areas of communication in apes and monkeys, the anatomy of locomotion, and skull comparisons. He has also become increasingly interested in the role of education in evolution as well as various aspects of race, primitive behavior and conflict in society.

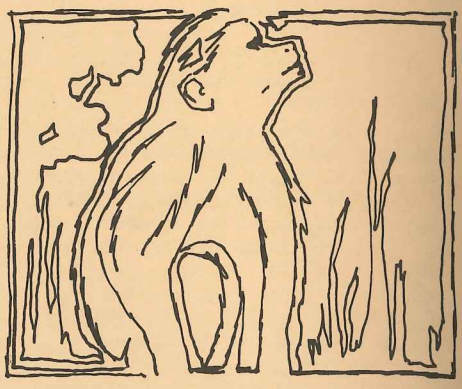
Professor Washburn is now at work assembling the extensive series of papers and lectures he has prepared on these subjects, for publication under the title, "THE MEANING OF HUMAN EVOLUTION." Funding for the period from January to December 1977 is needed in order to provide Dr. Washburn with clerical and research assistance so that he may continue his work on these scholarly and distinguished publications.



Donald C. Johanson $21,140 needed
Continued early man research in the Afar, Ethiopia

Over the past three years, with the help of grants from the Leakey Foundation, work has been conducted in the Hadar area of Ethiopia by a U.S.-France team co-directed by Dr. Johanson, resulting in the recovery of specimens representing at least ten individuals. These include approximately 40% of a single individual ("Lucy") dated at 3.5 million years and the most complete specimen known thus far from such antiquity. Last fall, at a new locality, this same team recovered bone remains of at least five to seven individuals and some 150 associated bones, one of the most outstanding concentrations of fossil hominid material known.

The fossil finds of the 1975 season, in conjunction with Dr. Mary D. Leakey's recent excavations at Laetolil, reveal the emergence of *Homo* at 3.7 million years, a time range considerably more ancient than has previously been thought. Continuing field work at the Afar site, scheduled for October 1976 to September 1977, promises to provide more detailed information on the environmental influences and evolutionary development of early man.



Cathleen Barbara Clark $5,190 needed
To study female reproductive strategies in bonnet macaques

Ms. Clark will conduct a pilot study on female reproductive strategies in bonnet macaques at the University of California, Davis Primate Center, and a subsequent field study of free-living savannah baboons in East Africa.

A primate female, given her limited reproductive capacity and time and energy-consuming investment in her offspring, would be expected to select the best possible reproductive partner. Is there evidence of choice in mating? How can it be measured? What criteria are used in selecting a mating partner? These are some of the questions Ms. Clark plans to investigate by coursework, research on captive animals and finally research on primates in the wild.

She is also particularly interested in the affiliative relations between adult males and females which may influence the formation of consort pairs. These "friendships" were found to be important by Dr. Shirley Strum in her study of savannah baboons at Gilgil, Kenya.

Richard W. Keatinge $12,000 needed
Pacatnamú-Jequetepeque Valley Project

Dr. Keatinge, assistant professor at Columbia University, began work at the Pacatnamú-Jequetepeque Valley site in Peru in 1974 under the sponsorship of the Columbia University Council for Research in Social Sciences and the Institute of Latin American Studies. The Leakey Foundation has supported his research since early 1975.

The 1974 and 1975 seasons have consisted of a survey of the settlement patterns of two major archeological sites, Farfán and Pacatnamú. Dr. Keatinge has conferred extensively with Dr. Ubbelohde-

Doering who first conducted an exploratory study of the area in the early 1960's. The current archeological research is aimed at demonstrating the impact of imperialistic expansion on a foreign territory.

The focus is on the Jequetepeque Valley, known from ethnohistoric sources to have been conquered by the Chimú Empire. Previous research in the Chimú heartland has led to the development of a model of Chimú politico-economic organization characterized by state control over land, water and labor resources. Through the study of changes in prehistoric settlement patterns, it will be possible to determine the effects of the Chimú conquest on the politico-economic organization of the Jequetepeque Valley. The Chimú Empire reportedly extended over the whole of the Peruvian north coast during the period from A.D.1000 to 1463.

Grant is for a vehicle for the expedition.

Mary D. Leakey $5,500 needed

Kikuyu volumes

Due to the efforts of Dr. Mary D. Leakey, and the able editing assistance of Mrs. Gladys Beecher and Jean Ensminger, the monumental three-volume study of the Kikuyu tribe written by the late Dr. Louis Leakey is now ready for publication.

Throughout his life, Louis Leakey identified himself with Africa and its people. Brought up among Kikuyus, he worked tirelessly for African welfare and considered himself more Kikuyu than Englishman in many ways. His intimate knowlege of the tribe led him to undertake this scholarly treatise on a group of people never before studied in depth. At the time of his death in 1972, Dr. Leakey had edited only four of the 30 chapters. The remaining 26 were edited by Jean Ensminger and Gladys Beecher (Louis' sister) with support from the Leakey Foundation.

The comprehensive study of the Kikuyu is broken down into three parts: history and tradition; the life of an individual from birth to death; and Kikuyu social organization. In addition there are a number of appendices.

The Academic Press of London, honoring a contract made with Dr. Leakey prior to his death, will publish the three-volume work in early 1977. This grant request, received from Mary Leakey, is to assist with the publishing costs.

OUR STORY HAS BEEN 20 MILLION YEARS IN THE MAKING. . .

20,000,000 years ago Man and ape diverged from common primate root stock.

2,000,000 years ago The bones of man's early ancestors were deposited in sites in Africa . . . in Asia . . .

2,000 years ago Scientific study of the universe and speculation about man's place in nature was only just beginning.

200 years ago The earth was believed to be 6,000 years old; there was no concept of evolution.

20 years ago Fossil finds as well as stone tools unearthed in Africa could at last be accurately dated by the new potassium-argon method . . . And remarkable new studies showed striking biological and behavioral similarities between humans and apes. Still, it was thought that apes were too ferocious to study in the wild.

TODAY, with the discoveries by the Leakeys at Olduvai Gorge and the many scientists who followed them in Africa and Asia, the emergence of man's early ancestors has been documented at 3.5 million years. New laboratory techniques, including innovative dating methods and comparative anatomical studies, have been developed to keep pace with the rapidly accumulating fossil record. In two short decades, inquiry into the archeology of early man has broadened with the aid of multi-disciplinary research.

Field studies on the wild chimpanzee, orangutan, gorilla and baboon by Leakey Foundation grantees Goodall, Fossey, Brindamour, Strum, DeVore and Rasmussen, have illuminated the behavioral patterns and adaptation needs of early man and pioneered the discipline of primatology.

BUT TIME IS RUNNING OUT. Many valuable archeological sites are being destroyed under the relentless pressure of man's expanding use of the earth. The great apes and countless other animal species are in danger of extinction all over Africa and Asia and only survive in protected areas . . .

YOU CAN HELP. Since 1968, the L.S.B. Leakey Foundation has been assisting the massive and ever increasing effort to understand how and why man evolved. Our grants have provided "seed money" for important research and emergency funding to insure the continuity of crucial projects. With the help of generous donors and members, and the recommendations of the science and grants committee, the Foundation has disbursed over one million dollars in support of the search for man's origins, the quest to understand his behavior and the urgent need to safeguard his survival.

BE A PART OF THIS GREAT EFFORT. . . JOIN THE LEAKEY FOUNDATION NOW!

Membership in the Leakey Foundation includes a year's subscription to the L.S.B. Leakey Foundation News, *a 10% discount on books and cassettes, special invitations to lectures, receptions and symposia, the opportunity to designate your contribution to a specific research project, and a special premium.*

YES, I WANT TO HELP. . .

My check for $_____ payable to the LEAKEY FOUNDATION is enclosed.

Please check one: ☐ New Membership ☐ Renewal

MEMBERSHIP CATEGORIES: **PREMIUMS**

☐ $15 Student
☐ $25 Friend ..... *African Genesis,* Robert Ardrey
☐ $100 Contributor ..... *By the Evidence,* Louis Leakey
☐ $250 Associate ..... *Leakey's Luck,* Sonia Cole
☐ $1,000 Fellow ..... *The Quest for Man,* edited by Vanne Goodall
☐ $5,000 Benefactor ..... *The Hunter and His Art,* Jalmar and Ione Rudner

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

I WISH TO DESIGNATE MY CONTRIBUTION TO THE FOLLOWING RESEARCH PROJECT:

_____

Contributions to the Foundation are tax-deductible as provided by law.

MAIL TO: L.S.B. Leakey Foundation, Foundation Center 206-85, Pasadena, Ca. 91125.

KWEKU

Continued from page 3

played with rock throwing, foot stamping and vigorous brachiating as well as shaking the dividing wall until the entire cage began to sway. François cowered in a far corner or clung to his handler's legs, pouting while rocking on his coco bag, which only further inspired Kweku's displays.

Since Kweku still had his human companion to play with, his behavior evolved to peering and lipsmacking, running up his side of the cage and occasionally stamping his feet while he watched François playing and being groomed by *his* companion.

In a few more days, after hours of this kind of visual contact, both individuals were able to control their anti-social responses (fear on François' part and frustration causing aggressive display on Kweku's part) to permit the first physical contact.

They began by touching through the wire mesh usually interspersed with excited chasing back and forth on either side of the wire. Kweku was able to control his excitement within days, as he got used to François' continual presence and watched the handler demonstrate appropriate behavior which encouraged contact. Soon Kweku began sitting quietly at the dividing mesh with a playface, looking at François. If he did get frustrated because François would not come close enough for actual contact, he would lipsmack and move away to his shelf, rarely displaying the violent behavior he had favored at first.

Two weeks after their first physical contact, the dividing door was opened and François was brought into Kweku's half of the cage by a handler. These sessions occurred daily for increasing lengths of time, from only a few minutes at first, to half an hour, ten days later. The pattern of their contacts started with frenzied chasing and wrestling as well as toe biting. Kweku was the aggressor but always with a playface, while François, using the handler as a base, launched an occasional lunge and short chase after Kweku.

Over the ensuing months, their relationship grew to where 30 minutes of frenzied play was followed by periods of rest and grooming while lying together on Kweku's shelf. They could also be left together in the cage with the divided door open for hours at a time without human supervision --meaning that François had learned to handle Kweku as much as Kweku had learned self restraint.

Kweku was then successfully socialized with two other chimps, thus confirming his status as a sociable chimp, not just dependent on François for companionship.

It is notable that he was considerably more gentle and tolerant with the female who was part of his unit, until she died of pneumonia. This fact plus his acceptance of the other male, George, indicated the kind of flexibility and willingness to expand his contacts, which is necessary toward survival in an area already inhabited by wild chimps.

We now began Stage III: introduction to the forest. We moved the chimp unit to a 92' x 92' cage set up in a distant and solitary part of the forest. Outside of their feedings three times a day by their handlers, they were alone with each other and the hitherto unknown sounds and sights of the forest.

About six weeks later we were able to open the doors and permit the group to walk and wander.

François was the leader on the forest walks for a while, since he had frequently been taken into the forest during his first two years, while Kweku could not be sufficiently controlled to be allowed the same freedom and experience. This balanced their relationship and prevented Kweku's superiority from becoming unilateral, which would have created a very unnatural social atmosphere, since wild chimps usually share male dominance among several individuals.

To date, Kweku is gaining confidence in the forest and leaves the other chimps and followers to explore on his own. He is happy to rejoin the others after these periods of solo exploration. This too, follows the natural pattern for chimp behavior in the wild.

It will be years before the Department of Game and Wildlife in Ghana will be able to determine if rehabilitating chimps provides a viable existence for the animals. In the meantime, they continue to support the project in Bia National Park because the experiment of socializing Kweku has worked.

LEAKEY LECTURE SERIES

Continued from page 3

ical, biological and social — exert on human life. His talk, "IMPROVING ON NATURE" concerns the interplay between humankind and the earth.

Future Foundation lectures include Richard Leakey who will launch a University of California, Santa Barbara lecture series for the Foundation on February 25 and will also appear at UCLA on February 26. Dr. Mary Leakey will appear March 8 at Caltech and March 9 at UCLA. Dr. Jane Goodall, whose U.S. lecture tour for 1977 will be inaugurated April 21 at the New York Zoological Society, is scheduled to appear May 3 at Caltech and May 4 at UCLA.

At press time, additional lectures were still being arranged for the 1977 spring schedule, according to Joan Travis who heads lecture programs for the Foundation. A complete schedule will appear in our spring newsletter.

For series tickets and/or information on Foundation lecture programs write: Leakey Foundation, Foundation Center 206-85 Pasadena, Ca. 91125.

These Pakistani workers were part of the team working with Leakey grantee Daniel Stiles on his recent field trip to the Potwar Plateau in northern Pakistan. Stiles' goal was to familiarize himself with the Plateau's geology and terrain and to locate archeological sites of potential interest in collaboration with the Yale-Pakistan Geological Survey and Dartmouth-Peshawa Research groups.

the L.S.B. Leakey Foundation News

FOUNDATION CENTER 206-85, PASADENA, CA. 91125 *NUMBER 6 FALL 1976*

NONPROFIT ORG.
U.S. POSTAGE PAID
L.A. CALIFORNIA
PERMIT NO. 29207

SEE SUPPLEMENT FOR SPECIAL GREAT APES REPORT

Address correction requested