MUNGER AFRICANA LIBRARY NOTES

AGGRESSION AND VIOLENCE IN MAN—A Dialogue

Dr. L. S. B. Leakey
Mr. Robert Ardrey

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FRONT COVER: Baule equestrian statue. Bronze. Yamoussokro region, Ivory Coast. Length, 13 inches; height, 13 inches.

AGGRESSION AND VIOLENCE IN MAN

A Dialogue between Dr. Louis Leakey and Mr. Robert Ardrey

The Dialogue was held at the Athenaeum of the California Institute of Technology and presented by the L. S. B. Leakey Foundation for Research Related to Man's Origin.

I am Ned Munger and it's my pleasure and honor to be President of the Leakey Foundation and to welcome you all most warmly to this eagerly looked-forward-to occasion.

The Leakey Foundation had its genesis here at Caltech. We invited Louis Leakey to come to Beckman Auditorium to speak as part of a new program series being organized at that time. Louis informed us that he would be glad to lecture at Caltech, that his fee was $100 a lecture, and that he would set up at least five other lectures in the area for that same day. He admitted that this was rather tiring--that he was not as young as he used to be. Our frank response was the Caltech refused to play a part in having one of the authentic geniuses of the world exhaust his energy by talking six or seven times a day at $100 a time when we felt he could easily ask for and receive $1000 for one talk. And this was the offer we made to him.

Louis came to Caltech for $1000, but he still went to a lot of other places for $100. And unfortunately one evening in the O'Hare Airport in Chicago, he did collapse because of overwork. It was at this time that a number of Louis' good friends in Southern California and nationally began to think of forming a group. They felt Louis' scientific work was of such great value that he should not be forced to exert himself so much physically on minor fundraising. So the Louis Leakey Foundation was formed with the idea of minimizing Louis' expenditure of energy on fundraising and also to give some support to the vast number of projects in which he has a hand. And now I can assure you Louis doesn't speak anywhere for less than $1000 a lecture!

The Leakey Foundation up to this time has made $100,000 in grants, but we have a very generous one million dollar matching pledge from Mr. Robert Beck, which means that any donation we receive is matched immediately by a similar amount out of this fund. The projects the Foundation supports are not only for Louis himself. He is interested in and assists a large number of scientific efforts, often financing them out of his own pocket. He supported, for instance, Jane Goodall in her study with the

chimps and Diane Fossey in her work with gorillas. Characteristically, he has mortgaged his own house in order to be able to carry on much worthwhile scientific work.

This evening I am pleased and honored to introduce Robert Ardrey, who will in turn have a special introduction for us of Louis Leakey. The last time Robert Ardrey's path crossed mine was in Africa about 12 or 13 years ago. At that time Bob was writing a marvellous piece for the REPORTER, which had the most beautiful, moving description of the Cape Peninsula of South Africa that I have ever read. Bob started his life primarily as a script writer and was extremely successful in Hollywood. He has done many well-known motion pictures, and has also written some excellent plays and prose. My favorite film that he did was Khartoum, the famous story of Chinese Gordon starring Sir Laurence Olivier.

It was about 12 years ago that Bob decided he had an amateur's interest in archaeology. So he went to South Africa to meet Raymond Dart. Although he started very much as an amateur, Bob Ardrey has a particularly searching, provocative intriguing mind. He began to ask questions and to dig, and he just dug and dug such as no one outside the field had ever done before. He produced three best-selling books. The first was AFRICAN GENESIS, about which there has been a lot of controversy--I know Louis Leakey disagreed very strongly with it. Then he did THE TERRITORIAL IMPERATIVE, which introduced some very fascinating new concepts, and now THE SOCIAL CONTRACT. Between the two of them, Bob Ardrey and Louis Leakey have probably reached more people in the world than anyone else in the field of early history, prehistory, prehistoric man, archaeology, the reactions of animals, and the reactions of humans. That is why this opportunity to hear both of them together is such an historic occasion. On behalf of the Louis Leakey Foundation, I am proud to introduce to you Mr. Robert Ardrey.

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ARDREY: From what Ned Munger has told you, you will understand that you have before you two of the most opinionated men of the 20th century. Happily, we like each other, and this may ruin the evening as far as I'm concerned. If with this subject of violence you really expect that both of us are going to be carried out on stretchers, having annihilated ourselves by the end of the evening, taken on separate stretchers to separate hospitals, I would suggest you go and get a refund on your ticket immediately. Because we're not going to do it. We like each other and we ritualize our aggressions. May we hope that a few others do, too.

As Ned told you, Louis and I have known each other for a very long time. To introduce Dr. L. S. B. Leakey to the L. S. B. Leakey Foundation I regard as what we call in Britain "redundancy," meaning unemployment. So there can be no introductions on that level. Before we get started on a dialogue, I would, however, like to define two points. One is my own relation to Dr. Leakey. The world owes a great deal to this man. He is the Christopher Columbus of anthropology. He has discovered new worlds; he has made old worlds look shabby. He has opened up something that none of us ever knew before. And he has given me somebody to steal from, so that as I write I can look at what Dr. Leakey did, or Mary Leakey, or Richard Leakey did the day before yesterday--which usually ruins everything I said about a week before. These are the discoveries. I sometimes think there is a Leakey gene. I don't understand the Leakeys. They have extrasensory perception; they have something. I don't understand why or how they discover things the way they do. We however, are the beneficiaries of their discoveries. Richard is now cleaning out Lake Rudolph. Does he bring those jaws back in a lorry? I don't know--he finds everything.

Dr. Leakey has furnished us with the furniture of human origins. And we are going to profit by it because there is a whole way of looking at man today which is to say, How did he come about? How much does this explain of the way we are? Really and truly, if we behave or misbehave, how much has this to do with our origin from a state of nature? Dr. Leakey and I are equally devoted to this. We have our rather different interpretations, but that is part of the fun. But it is a thing we look for. Oddly enough, Jean Jacques Rousseau looked for the same thing in his time: How did we come about? He just had all the answers wrong. He needed Dr. Leakey. We are here today benefitting from what the Leakeys have done. But only through discussions like this, through thoughts, through disagreements, through symposia of thought shall we come to answers about ourselves this minute, and tomorrow and the next day that have to do in truth with how we started out. Louis Leakey knows more than anyone in the world about how we started out. So, may I, in just a moment of tolerance, sit back and ask Dr. Leakey to talk. We are on the subject of violence, of human aggression. Why do we behave so badly to each other? Animals don't. It is man, bred in tooth and claw, not nature. Why is man different from animals? I have my ideas--Dr. Leakey has his. But I'm sure we agree that it's very important to find out why we are different if we're going to find out how we can be something else. Because, unfortunately, we are an endangered species. Forget some of those birds and so on--man is the most endangered species on earth. Only through discussion, through inquiry, through time, through going into our past shall we find anything about the locks to the future.

Now, I would like to let Dr. Leakey look into this his way. We'll just sit here and talk about these things. If you want to ask any questions, we will be happy to try to answer them. In the meantime, we may interrupt each other, argue with each other--you will just have to take it as it comes.

LEAKEY: Thank you, Robert. First of all I think we should cover one or two points on which I know we do not disagree, but just for the sake of the audience, so they will realize what we mean by "man." I don't want them to think we are confining "man" to Homo sapiens, because that would cut out a great deal of our argument, and I take it, Robert, that you would agree for this evening at any rate that "man" is in the hominids. The creatures who are our ancestors go way back to kenyapithecus, right through our cousins the australopithecines, to the present day. Will you agree?

ARDREY: You can't disagree, because it is a continuous line. You would never be able to find the moment when you could say the animal ended and the man began.

LEAKEY: So we agree on that particular point entirely. And the other thing we have to agree upon, which is very vital indeed, is that we are not discussing aggression in terms of the attacks that man and near-man and proto-man make on animals of other genera of species for the sake of food. That is not agression in the sense that we are discussing it tonight. Lions eat zebras, but that is not aggression. That is hunting food. And you do agree that we are not discussing that tonight?

ARDREY: Yes. The difficulty with that is you're going to have to say the aggression of the stockyards, where you kill cattle for beef and so on. That is not agression, obviously, as we have had to kill for food. I agree entirely, although I have a little thing I might ask you about some time.

LEAKEY: But on the whole, you agree we are not going to discuss agression in the attack form. We are really concerned with where a creature of one species attacks another of his same species, whether it is in australopithecus or in man today or in the past. So we have now eliminated two important things we do agree on, so we won't discuss either of those any further at all.

Now from there, I think we start to disagree a bit, because from my point of view I look at man and man's ancestors as creatures which until they became what Huxley and I call psycho-social men--when they were purely animal men, were like the animals themselves, and not, as far as I can see, aggressive or violent to each other. I will explain a

little bit why I think that is so. I think they defintiely did not have either the opportunity or the time or the means of any form to be really aggressive against their own species. This was chiefly because (a) there were too few of them on the ground, there was plenty of territory for them not to squabble; and, (b) they were still not living in close contact with each other. I believe the beginning of living close together came at a much later date (which I shall discuss in a minute), and I think that is something which was linked with a change from--the animal--at the beginning, and psycho-social man--the man who developed fire, speech, abstract thought and religion, burying his dead, and magic. And I believe, although I don't think Robert would agree on this, that was the turning point at which we, man--. We had been man before that, we had been Homo sapiens before that. We were still Homo sapiens in the animal, and before that Homo sapiens with ancestors Homo habilis and his cousins the australopithecines that Dart found in South Africa and we now are finding in East Africa, too. And before that, back to kenyapithecus wickerii. I don't believe personally, which is where I think we will disagree, that any of those forms of man, in the widest sense, were aggressive and violent to each other. They hadn't the time, they hadn't the leisure, and I have a horrid suspicion that one of the reasons why we have become agressive to each other more and more in an ever-increasing way is because we have turned to a way of life which throws us more and more together into great masses of people and gives us more and more leisure to think up things like jealousy, hatred, and malice, and then practice them.

At this point I'll ask Robert if he agrees with what I've said so far. I think he wants to throw some questions at me now about our earliest hominids.

ARDREY: Unfortunately, we do love each other, but we do get into trouble. You have, for example, Peking man--Homo erectus--who was evidently a head hunter. You find no body bones at Choukoutien, and you have heads with the underneath hollowed out to extract the brains, or at least most authorities accept it as such. You have a great deal of mayhem in the history of the developing man, but which is personal. You see, if you want to make a line between organized violence and personal violence, I'd say, absolutely, you don't get much organized violence until fairly recent times. Personal violence you get a lot. You can go back a long way and you'll find that somebody clobbered somebody. I think this is like murder today where two-thirds of murders are committed between people who know each other. And I think we had the same old instincts in the old days. But what I am more concerned about is organized violence, which we have had in more recent times. I think it is perfectly natural for a man to get mad at his wife and hit her over the head and kill her, or vice versa. But this is one of the things that happens that you call "human," and which started early. Did or did not Homo habilis get conked on the top of the head?

LEAKEY: I'll answer that right away. Homo habilis had a hole on the top of his head, the first habilis we ever got--the youngster, the 11-year-old. But I have never stated that he was murdered. As far as I am concerned that hole in his head was definitely a sign of death by violence. Whether it was from falling out of a tree or being hit accidentally by a fellow school-boy (if you can call it that), or whether it was deliberate killing, I don't know. I personally do not think at that stage people were killing each other seriously because they were angry with each other. But it is an open question--I can't prove it.

ARDREY: No, you can't. However, there is a very clean-cut case which is Vertezollos man in Hungary, which was the first known Homo sapiens--unless maybe your new one is a bit earlier. But they are the same age--300,000 to 400,000 years ago--and he was definitely killed by one of the stone implements that lay beside him. His head was caved in by it, and that was the first known Homo sapiens--unless your son, Richard, is finding a newer (or older one, rather) this year. You do have evidence of violence all through, though. I mean, Monte Circeo man and the neanderthals with his head cut off, and brains hollowed out, and mounted around stones. You have these things, you have evidence of violence. I don't take them all that seriously. We were dangerous animals. We were dangerous to each other. But I don't think this relates necessarily to the modern problem of violence as we know it, which is group violence, organized violence, war, etc.

LEAKEY: I agree. I'd like to take you up on two things. First I would like to discuss very briefly the Choukoutien man. It is true that there is some evidence of Choukoutien cannibalism, but at the same time Choukoutien is one of the exceptions of the rest of mankind because they were already living in a cave. In other words, there was a cave and they were living in close communities because caves were rare.

ARDREY: May I interrupt to say this is Peking man, as he is more commonly known--say 300-500 thousand years ago. Peking man with a brain 2/3 the size of our own.

LEAKEY: Yes, Peking man is certainly an exception in that, surprisingly, he had fire. I don't think he had made fire, but I think he was catching wild fire and domesticating it. The evidence shows he had discontinuous fire and he was in caves. And when you start living side by side in the small area of one cave with a lot of different families, then your jealousies are going to start and your hostilities between each other are going to start. My argument is that if you go back to Homo habilis, or to early Homo sapiens, he was not in a position to really be hostile. He was living in very, very small groups, and, as far as I can see, he did not have the leisure, I repeat, he did not have the leisure in which to develop hostilities to his fellow man. Too much of his was taken up with other business.

ARDREY: I agree; he was too busy surviving. And separation was very important, because as hunters they had to live quite far apart in groups. They could not have been next door neighbors because there wouldn't have been enough animals.

LEAKEY: Until you get to visit the caves of Dordogne, where they had moved into cave-living, cave-dwelling, which gave them shelter from the wind and the cold which they had never had before in the open. But, at that point, they were certainly in much closer communities as far as living was concerned, and they were going out farther to hunt. And I still put that down to the discovery that man could make fire himself. Have you ever thought about the significance of the making of fire in relation to human speech? I have thought about it a great deal in the last few years. I have been out on a number of occasions with hunting tribes in Tanganyika. And to my great surprise they were silent pretty well the whole day long from dawn to dark because they were either hunting, or after they made a kill, they were still not going to talk because they might make a second kill--it might be their lucky day. From dawn to dark, when they got back to camp they talked. But while they were out, their only talk was of essential things, like meat, stone--concrete things. And I was foolish; I thought that the women of the tribe, because they were food gathering, would be chatter, chatter, chattering all day long, because the nuts, berries, and fruits would not run away. But I had overlooked the fact that they, too, always had their eye for meat which they would find. They have bifocal vision.

ARDREY: Is this people like the Hadza?

LEAKEY Yes, the Hadza. I went out with the women, and I found they didn't talk, either. Of course, they talk at night--talk, talk, talk, and the men talk, too. But they didn't talk by day. They had bifocal vision; they would come around a bush, and there would be a baby Grant's gazelle or Thompson's gazelle lying on the grass which they could see with their television and bifocal vision. And the other animals couldn't. A dog would go right past if he wasn't on the right side of the wind. But humans, no. And so they didn't talk while hunting or food gathering. But once you got fire, then after you come home in the evening, the men and the women first are cooking, then in the shelter of a cave they can talk and talk until 11 o'clock at night. And that to me is the beginning of our real aggression, because then was the time they began to invent words for and began to think about horrible things like hatred and malice and war--things that before had never been in their consciousness.

ARDREY: This reminds me of a very funny joke. That the Aswan Dam in Egypt was going to light up all the villages and would reduce the birth rate, because all the people will have something else to do! I don't know--they

will be able to talk or play dominoes, or something. But I agree; the fire makes a focus at night which you wouldn't have otherwise and encourages you to communicate and tell the story of what happened during the day.

LEAKEY: And you thus get speech. And with the arrival of real speech, although it has done a great many beautiful things, at the same time it has done certain awfully bad things, because it gave us time and leisure to invent ideas and some of those ideas, I am afraid, were the causes of our aggression.

ARDREY: So much communication is this kind of communication. And so much of communication as languages developed has made it absolutely impossible to understand what somebody else thinks. This is part of our problem today. Speech is not all fine. You hear some beautiful things from beautiful anthropologists about how it makes mankind one. I don't see any part of it. I agree with you down to the bottom on that.

LEAKEY: I don't think speech was present at all early. I think possibly you would regard the proto-men, hominids, and the early things like habilis as maybe having speech. I think they had rather more words than the chimpanzees do. Jane has now, with the help of one of our sound machines, got about 80 different sounds. I imagine our ancestors had three or four times that number, but not speech in my sense. I am trying to get you to agree with me that really the fundamental was speech and it was very late.

ARDREY: No, I don't think so. I think speech in moderately--not elaborate, but grammatical form--emerged at a fairly early date, let's say, before the big brain, in your Homo habilis stage because of the necessity of transmitting the social wisdom--the wisdom of the hunter--to the young. I don't think the hunter needed it so badly, but I do think there was a tremendous necessity for the young hunter--the hunter-to-be--to learn verbally from his elders the ways of the wild animals of different forms, which vary so much. So I have a feeling that speech started at a very early day, but perhaps it did not become too sophisticated until later on.

LEAKEY: I would disagree with you there. I would agree that Homo habilis definitely had the potential (I underline "potential") for speech of a far greater quality than any chimpanzee or any near-man had--even more than the australopithecines. Homo habilis had a speech potential created by the muscles of the root of the lower jaw. This was two million years ago. He had the potential, but I don't think he had developed that potential because he didn't have the leisure. I cannot see men or women, until they have fire, being able to develop speech to any degree--at least not abstract speech, because of having been out with these people. Until you have fire, when you come home in the evening you just sit. And those who are not cooking or

cutting up the meat and getting ready to go to bed, are listening, listening. Elephants can stampede past; snakes can come wiggling up where they lie--they are not in caves. Only when they have got fire. Cave living is late, apart from Peking man, and fire is late. I put the whole development of articulate speech in relation to abstract ideas as late.

ARDREY: Are you getting at something with articulate speech--you developed the capacity for articulate violence along with articulate speech?

LEAKEY: Yes. Between man and man.

ARDREY: You could unite groups with speech against others. Something that was impossible before you had speech?

LEAKEY: Exactly. You could stir up emotions.

ARDREY: That's a very interesting idea.

LEAKEY: To me it's one of the key points.

ARDREY: The regular use of fire was about 40,000 years ago. The sporadic use of fire went back to Choukoutien man, 300,000 to 400,000 years. But regular use of fire, meaning control, so you could make a fire, about 40,000. So this would mean that this began only about 40,000 years ago.

LEAKEY: Yes. That's what I think, and that's why I disagree with you. I can't see it any earlier. Going back to that, once you had fire, you moved into caves, and once you moved into caves, you had freedom and leisure. But with that came concentrated groups. The number of caves in the Dordogne valley that we have both seen were limited. And for the first time I think the people went in large numbers in one and the same place to sleep and to live, although not to hunt. They had to hunt separately. I think that was a key point, as I've called it in my recent lectures, the Last Milestone in Human Evolution.

ARDREY: I would take it back farther than the Dordogne, because that is not so long ago. I have great difficulty with my wife; she gets mad sometimes because when I say recent, I mean 50,000 years and she means last Tuesday. Dordogne is really recent. That's 15-20,000 years ago. I think we have to go back farther than that.

LEAKEY: Let's go back 40,000. That's recent from my point of view.

ARDREY: Well, I think speech goes back farther than that. Partly because it's very difficult for me to believe that the proliferation of languages

that has come on this earth all based on essential unified grammatical structure--there is no such thing as a primitive language--occurred as recently as 40,000 years ago. I feel that it must have started much earlier to have reached the last ends of the earth that it has. This, however, is just a very speculative argument which I certainly don't want to back up in front of my very speculative friend here.

LEAKEY: We both speculate, don't we?

ARDREY: Yes, it's our business. May I tell a joke about you? In my first book, AFRICAN GENESIS, I describe this man as a bull in search of a china shop. Two books later I realized that perhaps after the controversy I raised, maybe I'm the bull who found one. These are the opinionated men I was speaking of. So I guess if we disagree on a thing like this, don't worry about it because it doesn't mean a damn thing. We don't know anything, really. We're speculating. I think the point of view of fire and language is fascinating because quite possibly, this was the focus of conversation, this was the point where you had a reason for conversation, a scene for conversation, like in a theater. Here was the stage; here you could talk; and this was the consequence.

LEAKEY: Robert, do you think I have over-stressed the importance, then, of speech? I think it is the most important factor, but I have an idea you may not agree with me on that.

ARDREY: It's a very important contributing factor. It's a cultural thing that happened to us which is a contributing factor of no end importance. But I think that other things are going on in the meantime, and this is where we disagree a little bit. Because I think man was a dangerous animal from way back into the hominid days. He was a dangerous animal in the sense that a wolf or a lion is a dangerous animal. So we had the potentiality for violent action in us. However long we were hunters is a matter of disagreement among anthropologists, although I suspect not goo great. Hunting went way back. Hunting, however, was something that encouraged, by selective necessity, a desire not to flee, a desire to attack, a pleasure in the chase, or you would be selected out. You had to be adjusted entirely towards attack. Now, we were armed hunters. And through most of our history as hunters, we were no better armed than any other hunter--wolf, or whatever. We carried a stone, wood, club, whatever weapons we had, to defend ourselves, or to attack with. But they were hand-held weapons. It is a peculiar thing that Louis and I come around to about the same date in talking about this, because the long-distance weapon--providing for killing at a distance--came about in just about the same period we're talking about--the fire thing of 40,000 years ago. A few thousand years later the long-distance weapon was invented by the very last of Neanderthal man in the Sahara Desert,

which was green in those days because ice covered Europe. At this time, in between the Atlas Mountains and Algiers, in that area, you get the Aterian culture, which presents you with the very first thong weapons which have the little point at the bottom like an American arrowhead. Tanged, we call it. This meant this weapon could be fastened to a haft. If it was a light one, it could be a bow and arrow. This was the invention of the bow and arrow. A heavy one could be attached to a shaft, which would make a throwing spear. Before that we didn't have weapons that were well adapted to any kind of killing at a distance. However, this is very close to the same date we were talking about--the fire, 40,000 years. This is 35-30,000 years ago.

LEAKEY: I'll let you finish first, but I'll take you up on that. I think the bolas was the weapon for attacking at a distance.

ARDREY: Well, yes, it's true. And you find these stone balls so far back--I'll leave that to you, because you're the man that knows about them. At the same time, you didn't attack at quite the distance. The bow and arrow is effective at a great distance. I think a qualitative change came about when this weapon was invented. It was simply this. Before that we had been simply animals among animals. If we killed for a living, which we did for our meat, we killed no differently from the lion or the hunting dog, or the hyena or the wolf. We killed in close quarters, taking all the risks. But the day we had a weapon that could kill at 50 or 100 yards (there is a record of a Samoan Chief who could knock over an animal at 257 yards with a bow and arrow), we got into the new era which finally culminated with the nuclear bomb. Here the odds of the offense were changed very much in terms of the defense. In the old days we took a terrible risk going after a big animal larger than ourselves. The day we had a weapon that could kill at a distance everything was changed. The offensive weapon was greater than the defenses. Now we started talking about violence. Dr. Leakey has introduced the enormously important thing of language, which meant we could share the knowledge on how or why to do violence--or we could kid ourselves into why we should do violence--because those guys are terrible and we are fine. We could say these things to each other. We couldn't do it when we were like the wolves. Now came the problem of the mob, of the organized group, of organized killing which we came to know as war, but today we may call violence on the streets. It is all the same thing. The violent group. This I feel--the vast change in the quality of the weapon in the hands of a dangerous animal which we were and which we remain--seems to have introduced a qualitative thing into our evolving life. It didn't, in fact, have a great effect on human existence for some time. The glaciers still covered Europe. It was quite a long time, maybe 12-15,000 years ago, before these long-distance weapons began to come around. Early settlers to the American continent brought them over here and killed with them. But it seems to me this

is where the predator came into his own. We talk about how in the old hunting days we were too busy making a living--making a living is tough, whatever some of our friends in the American colleges may say. And you didn't really have that much energy left at night for going out and quarreling with a neighbor. Maybe in a cave, with your very close neighbor. But going fifteen miles away to get into a battle--nonsense. You might lose someone you needed for getting the next day's hunt. Very important! I question very much that such organized violence was of anything but what I would call recent--I mean 10-12,000 years ago. We are talking about the cultural points: the culture of language, the culture of weapons. I think these are very important. But what I want to emphasize is that we were dangerous animals to begin with. It was just that we were too busy. Wolves aren't that dangerous; they are too busy, too. When we got this thing that meant the offensive, it was so much easier, we turned into different beings in violent ways.

I would now like to get off the point that I wanted to make back to you because my thesis of the hunting way as the essential necessity or the genetic background of human propensity for violence (not that we are all violent, but enough of us are violent to make the rest of us have to go around with steel vests), to me this is when it started. It may have started way back in the days of your friends at the bottom of Olduvai, or Richard's friends up in Rudolph.

LEAKEY: I think on that one that you and I do disagree violently. I don't believe the earliest man even up until Homo habilis was anything more than a scavenger. I don't think he was killing. I believe quite definitely that he was going around scavenging animals. I have two reasons for that. The first one is that the remains we find on these very early sites at Rudolph and Olduvai never are the remains of a complete animal. We find front legs or back legs. I experimented with Richard. We went out naked, picking up some giraffe limb bones and jaws to act as rudimentary weapons, but not such as we could offend or kill anybody with, just protect ourselves a little. And we drove off the vultures and the hyenas long enough when they came in to the kill. We couldn't drive off the lions--they came in and made the kill. We watched them and the vultures watched them and the hyenas watched them, and then we rushed in as scavengers. I think for a very long time--almost until the very point of discovery of fire, we were scavengers and not weapon makers, and therefore not offensive. I don't think you agree with that.

ARDREY: I don't. Most definitely I do not. I see no reason on earth before we had a weapon that killed at a distance why anyone should be afraid of us. This is part of the scavenging hypothesis, as it is known in anthropology, that we went in and were able to frighten off animals, or that we went in and other animals did not quarrel with us. I'll refer you to INNOCENT

KILLERS, Hugo van Lawick and Jane Goodall's book, in which they come to the conclusion that nowhere in the human past would we have been capable of scavenging regularly. We certainly swiped what we could, there is no question about that. But, then, lions swipe from hyenas. This goes on all the time in the predatory community. The question is, Can you live off it? I see no reason why we could have. The farther back you go, the more poorly were our feet developed, the slower could we run, the more inadequate we were as to what were to become men. And I see no reason why we could have competed with the natural predator scavengers. They all hunt and they all scavenge from each other. How could we have won in a competition with a hyena? A hyena would have eaten us.

LEAKEY: Well, continuing with my story, we went in for ten minutes and for a short ten minutes we were able to keep the hyenas off--they were furious. And after ten minutes I signalled to my son, "Get out, it's not safe any longer. They're going to kill us now." But we got a little zebra. And I think that the evidence at the sites does show that we were getting legs here and there, and of course we were supplementing it by the killing of small game--juvenile animals which can be done very easily, and by what I call slow game--tortoises, frogs, baby birds, rodents. And there we disagree fundamentally.

ARDREY: Louis, you forget you are talking about modern man who has been shooting animals with bow and arrow, guns, clobbering them in one way or another for so long that they have developed flight distance to get out of our way. They're scared stiff of us. They've been scared ever since the long-distance weapon, when we were separated from all other animals. You can go out today and scare hyenas off with a lot of noise or you may even bother lions; you can do it because they have an association with you as sudden death. You are sudden death. But why in the old days, when we were only four feet tall and weighed 85 lbs., and had nothing more to kill with than a stone in the hand, a piece of wood, or whatever--why should animals have been afraid of us then? I just don't think we were doing anything in the way of killing then.

LEAKEY: But we were scavenging and you can scavenge. Many times I've seen a kill with only vultures and jackals and no bigger animals on the kill at all. They didn't scavenge all the time; they'd kill other things and hunted other things, and they had nuts and berries as well. They were omnivorous, but I don't believe in the earlier days we were anything but scavengers; insofar as we date meat at all.

ARDREY: Well, it's a big difference, but in a way it doesn't all matter that much, because we're going back so far. We're talking now about 1-2 million years ago. This isn't even recent in my terms. If we go back

500,000 years ago to Homo sapiens, the big-brain man, there isn't much question about what went on. They were definitely hunters. What we do know is that for only 10,000 years have we had any control of our food supply and have we not been dependent on wild food. I believe you and I agree that we didn't live much on spinach. This is a fashionable point of view much promoted in American anthropology. Lettuce is great for diets, but not for men who have to work for a living. We had the necessity of living off meat. We had to get it somehow. We undoubtedly scavenged whenever we could, but we could not survive 365 days of the year hoping somone would leave some meat around. So we had to be able to hunt and kill. The basis of the hunting hypothesis is that the necessity lay on us for selective survival to be able to dare to go in to attack. And, unhappily, about 10,000 years ago we domesticated cereals, we domesticated cattle, goats, sheep and so on--I say "unhappily" because in the new book THE IMPERIAL ANIMAL by these ethnologically-named anthropologists, Robin Fox and Lionel Tiger--a marvelous book, incidentally--they go back to this date when we got control of our food supply and say, "Was it good or was it bad? We have sure had enough trouble since." Overpopulation, because suddenly we've got so much more food and we have so many more children and all of a sudden we begin to get the conflict of things which is important. This is where your idea and mine link together so interestingly, because your language thing meant greater differences between human beings and my weapon thing says these differences could be enforced so much more violently. And here these two ideas come together. I go with this entirely. Now we come to the point of the food supply. And it is vegetable food supply, but fortunately by that time we had invented cooking. If you ever ate some raw spaghetti you'd find out that you have to be able to cook this stuff. But by this time we had controlled fires. And now comes the population explosion, and the problem of conflicting groups for space, for areas, for food supply, and all that came in about 5-10,000 years ago. About then we all really began to get into trouble. But here are three points that add up: language, which made possible beliefs of inordinately irrational order; and, finally, food, which made possible inordinately too many people. This was more or less the road as I see it which is in our line. But, of course, from that time on you really had the possibilities of violence beautifully stated. The foundations, like the walls of Jericho, were there in front of us, to proceed and to perfect, and we have perfected them as no other species of the living world.

LEAKEY: Now, Robert, this brings us to a most terribly important thing. We can't leave our friends here thinking that you and I believe that we have become so violent now that there is no hope for the future. I personally don't believe this at all. I think we have reached a point where we certainly have a very short time in which to make up our minds what we are going to do. We can, because we're the only animal (and I say "animal" advisedly)

who amongst his evolutionary developments, developed a brain and a precision grip. And, if we do not want to destroy ourselves in the very near future, we can and we must today set to work jointly, and all together--over the whole world-- say to each other and to our leaders, we are not prepared to have destruction of men and the whole beauty of the arts, of the music that we have inherited from our forefathers. We insist on changing direction, now!

ARDREY: I find an interesting thing. I have never known an evolutionist who was a pessimist. It's very curious! You say you are not?

LEAKEY: I am not.

ARDREY: And part of the reason is that life has a way of solving its own problems. Now, you may have to go through dreadful things to get to the solution. You know, "Things have to get worse before they get better"--that sort of thing. It's never going to be easy. But there is an idea that has come up in recent years that I think is marvelous. The man responsible is up at Stanford. He is a clinical psychiatrist named David Hamburg. He's done a lot of work with Washburn at Berkeley.

LEAKEY: Yes, I believe Mr. Washburn is a Leakey Foundation Trustee.

ARDREY: They have an idea which is marvelous. I have always made a good deal out of instinct. (Don't pay any attention to me-- I change my mind all the time. He's a professional, I'm an amateur. He can't change his mind, but I can change my mind. That's the nice thing about being an amateur.)

LEAKEY: I change my mind, too, believe me!

ARDREY: Yes, you do. I know you do! You have the marvelous capacity for knowing when you are wrong, as I do. But we know a few friends, do we not, who don't know when they are wrong?

The Hamburg hypothesis is quite simply this: Forget about instinct when you get up into the higher animals in which learning is so important. Never have the idea that people go by learning and animals by instinct. It grades so gradually--read Jane Goodall's book, IN THE SHADOW OF MAN, about the chimpanzees. The greatest book ever written on animal observation. I urge you to read it. And you will see how much the chimp has to learn. Why it takes so long to grow up, because it has so much to learn. Ten years of observation before it becomes an adult.

Now what happens with us, and with chimps also as far as that's concerned, is Hamburg's thesis. Evolution makes easy to learn that

which is of survival value. Evolution makes difficult to learn that which is not survival value. Think how quickly you learn language and how long it takes to learn the multiplication tables, which have no survival value in our evolutionary history. But language has. So we learn--bingo! --between the age of two and three. Says Hamburg, it also makes it pleasurable to learn those things that are of survival value. Go back into the hunting past and think of the necessity of being able to hunt and all that. The violence and all was pleasurable. Now it is maladaptive. It's murder. Now, what is it we are up against? You can learn to be inimical. Kids can wind up in trouble or kids can wind up angels. But you have got to work on them, because it is easier to learn to be a murderer than it is to be a peacemaker.

LEAKEY: I entirely agree, and consequently, we have to take steps now. I absolutely agree with you that we are not, as evolutionists, pessimists. We know the potential of men, and somehow, in some way, in the very near future, because we only have a very short time to go now, either we will be destroyed by overpopulation, pollution, etc., or we are going to save the world for our future generations--for our children and grandchildren and great-grandchildren. One or the other. And I think we have to do it now. That is the lesson from our study of the past.

Questions and Answers

QUESTION: Dr. Leakey suggested that the origin of aggression between one group of men and another group of men was based on the ability to use language to organize social animosities. What evidence do you have of those other primates of organizing their own societies in order to attack other primate societies of the same type when there is a shortage of food or some other provocation?

LEAKEY: I am not a specialist on primates of today, but as far as I know, the monkeys as a whole, and the primates as a whole have not reached the stage of organizing aggression against each other for food supplies, except under semi-contrived conditions. Down at the Gombe Stream Reserve, at one time for a short time, Jane Goodall did set up bunches of bananas to attract the chimpanzees near her camp to get certain types of cinema pictures which she needed very badly for her films. And at that point, the baboons did come in because they were also attracted by the bananas, and they did attack each other very considerably. But that was a situation partly contrived by humans and, in the ordinary course of events I, myself, have not seen primates competing against other species of primates, but they, of course, haven't any language. And I think that when language

starts, one group can say to the members of his group, "Come on, let's go and kill them--they have something we need." That is where aggression between groups starts. Would you agree, Robert?

ARDREY: I would in terms of organized aggression. You can't organize it very well without language. However, there are quite a few species of primates in which you will get sort of organized battles, but they are charades in a way. Vervets do it on the mainland, langurs do it in Ceylon, certain new world monkeys in South America. Every morning they come out and have a fight with the next group. But, you know, it is like setting-up exercises. They're just having a little fun. There's nothing serious about it--nobody ever gets killed. The howling monkeys go out and screech at each other worse than the United Nations. This is a primate exercise that some species seem to enjoy and others don't. And even under certain environmental circumstances, a species will do it or not do it. You have plenty of background for what I call xenophobia in the social contract, which is the rejection of strangers. Not too much in the chimp, but in most primate species. Charles Southwick has just this year been doing a study in India of the rejection of strangers by the Rhesus monkey, and it is 100%. So there are backgrounds for aggressions, but since these cannot be organized, as Dr. Leakey has suggested, by language, they don't get all that important. It is just sort of stimulation.

QUESTION: Mr. Ardrey, in your book TERRITORIAL IMPERATIVE you have stated that animals are defending territory, that many birds have defended a territory, and you have documented this very well with certain species of birds and animals. Are you inclined to make a generalization that all species of mammals are territorial animals, or that their instincts are based on sex?

ARDREY: Let me answer the part about whether all species of mammals are territorial in the sense that they defend an area of space against intrusion by their own kind. Of course, not all species are territorial. An elephant is not, the gorilla is not, chimps are not. They all have their range. Then there is an in-between area of species, like baboons, who don't defend their territory because no one intrudes. It is exclusive, but they all have more sense. This is sometimes why I say, rather sarcastically, that animals make sense, men don't. Baboons make sense--they just don't intrude on territory, so there is no conflict. There are all sorts of gradations. For instance, in the langur species you will have gradations, depending on the environment as to whether they do this or not. It is like a portion of the behavioral repertory that you can use territory. If it is an advantage, you do; if it is not an advantage, you don't. And one of the hopes I have for

our national animosities (and there is no question we are a territorial species in my mind--I can't look at history and decide any other way), but the baboon learned somewhere in his history that it's a lousy idea to intrude--you get beat up. And after our experience in Vietnam (I don't think I was supposed to mention that), I would hope that Americans would learn that intrusion is not a rewarding way of life.

QUESTION: Dr. Leakey, are you in accordance with Mr. Ardrey on the fact that territorial instinct is very important to many animals and especially in birds? Or do you feel that in some animals it is more a sexual instinct as far as dominance goes?

LEAKEY: I have never seen the sexual instinct play any part at all in animal aggression, in animal violence. Never, never, never. Animals and birds defend territory, but they are not jealous sexually. If an intruder comes into their territory, they may fight him, but not because of sexual jealousy but because of territorial jealousy. Witness to that Jane's Flo, one of the most sexy, attractive chimpanzees she had down there, who in season is sometimes mated by seven or eight different males in one day and very commonly the younger ones and the ones who are not as dominant take the field first. Surely you have seen a bitch in heat. The dogs don't fight over her, they wander around chasing her. But I've never seen two male dogs fight over a bitch unless somebody accidentally got hurt in the course of it. They turn on each other, but otherwise not. Sexual jealousy I've never known anywhere in wildlife; territorial jealousy, yes. Wouldn't you agree, Robert?

ARDREY: Well, I've never known two men that killed each other over a woman. I've heard stories about it, but I've never known them. This has been a vast case of self-flattery on the part of women, may I suggest.

QUESTION: Mr. Ardrey has suggested a number of backdrops for the emergence of organized violence. One was fire, another was the emergence of speech. I wonder if we could bring in another one which would be the growth of a large brain in such an inordinately short time. Arthur Kessler says there is a relatively new brain, the neocortex, built on top of several more brains, and his suggestion is that there is a coordination between the two, but there is a lack of communication between the two. Perhaps with speech, fire, and weapons all at the same time, it was possible to draw more on the resources of the new brain and harness the violent tendencies of the older brains.

ARDREY: I spent a day last week with McLean in Washington, by the way, the Director of the National Institute of Mental Health, and Kessler and I think that he has the answer in the sense that we too frequently refer to the brain as we do the heart, as if it were an organ. It is an evolved organ with various areas and McLean's point is that the reptilian brain still exists, circled by the early mammalian brain, and then finally by the immense cortical development of the human being. He feels that this cortical development is so recent that we haven't developed proper connections yet. We don't have in all the switchboard. And this means that the old animal brain in us (which is a delightful phrase, because it means that nature never throws anything away), we are stuck with the old brain. It still operates, but without the inhibition we'd like to believe the cortex could give. The problem is that we have somehow to work awfully hard on the communication between the cortex which tells us that something isn't going to do. That the violent life, for example, is simply annihilation in the end. But the trouble is that we have one of those Spanish postal systems when it comes to dropping a message into the box and getting it down to the old brain. We don't know how soon the message will get there, if at all. And so we are fighting against something that is very tough. But you can't take your eye off it--you have to work on it all the time. You can't just believe that the old brain is angelic in any sense.

LEAKEY: I must add, though, that there is no correlation at all scientifically between absolute size of the brain and the function of the brain itself. It depends on two things, (1) the relative size of the brain to body size, and (2) the complicated development of the brain itself within the actual brain capacity. Some of the best mathematicians who ever lived have recently had their skulls exhumed, by permission, and they had smaller brains than the average. But they were brilliant. We did an experiment some time ago in England where we exhumed the brains of a number of other well-known people in other fields, such as sports, and although they were not very intellectual, they had big brains. And I would remind you that Neanderthal man and early Homo sapiens (250,000) before he was psycho-social man had a much bigger brain than the average person in this room.

QUESTION: You've been talking about organized violence tonight solely in terms of cultural context. What about that ancestor of ours Mr. Ardrey mentioned in AFRICAN GENESIS, which was supposed to be a "killer ape?" What kind of a genetic transfer do you see from our ancestors to modern that contributes to organized violence?

ARDREY: You remember I emphasized that everything in the selection, as long as hunting went on--and Dr. Leaky and I are agreed to disagree because, say it was a half million years, or two-three million years, so

what?--it was long enough to have an immense effect on us genetically in terms of natural selection. Selection favored the efficient capacity for violence, the enjoyment of violence, and all that. For a period so long--500,000 years of what we call "true man"--in this period the hunting emotions, the hunting patterns, were so favored, that let's say you didn't like to go out and hunt. One, you wouldn't get the girl; two, they'd throw you out--you'd just be an extra mouth to feed. You were no good. So through all this long period, you had a selection in favor of those who enjoyed and were highly able in the violent life. Now, it is only in the last 5,000 or 10,000 years (10,000 years for the control of food, but 5,000 years would be a significant time for when this control available to a significant number of men), but you are dealing with only 1% of the time! Five thousand against 500,000. Which means that we have all kinds of maladaptive prejudices and biases left over in us. Biases which were placed in us by selection. This is why I brought up Hamburg's idea that during more than 99% of time to learn violent ways came easily because it was of survival value. Now we have to do a right-about face and say, no. We must be nonviolent. Yes, we can do it--but are we going to have to work at it! We must not applaud the violent. We must even think twice before we applaud the motives of the violent. Successful violence merely breeds more violence. We have to face this in America where we have so many groups that have just grievances. But that which is accomplished by violence will only mean an extension of violence, until finally you have a violent end in which the violent figure rises above and surpresses all violence, meaning takes a monopoly on violence. This is the only end result.

QUESTION: How would each of you feel about a mass chemo therapy which would perhaps adjust this violent characteristic of man?

ARDREY: May I say, forget it.

LEAKEY: I would say, I don't believe it.

ARDREY: You remember in World War II when someone wanted to sink all the aircraft carriers--Seversky. And the phrase was, "He's going to win this war with the next war's weapons." That was the problem. We weren't going to have aircraft carriers, we were going to have land-based bombers. Well, that all sounded very well, but the Pacific war was won by aircraft carriers. You can say a thing like that, but it has nothing to do with anything in the next 10-20-30 generations. I don't think it ever will be, for that matter. If we are going to wait for that, let's get a great big graveyard, because we are going to need it.

QUESTION: If we learn from things like Vietnam that it isn't good to intrude, and the Communists believe that it's groovy to intrude, and they make their point, what are we going to do then?

ARDREY: The problem of intrusion hits eveybody. You remember the Cuban missiles? Do you remember the terrible loss of face on the part of the Soviet Union when they had to withdraw in that case of intrusion? I suspect the Russians learned from it. I suspect we're learning a bit. I don't mean this thing is going to happen quickly--in fact, I'm offering it only as a half-hope. But maybe we will learn that intrusion doesn't pay. Crime pays, but not intrusion. Do you have anything to say on that, Louis?

LEAKEY: No, I think you've covered it.

QUESTION: Mr. Ardrey said that it was much easier to be a murderer than a peacemaker. I would say that anthropological evidence would probably back it up. It seems to me the significant thing would be to find some evidence of a peacemaker anthropologically. This might be very hard to do. It's easy to find bones and skulls--these are easily recognized. But how could you find anthropological evidence of peacemaking in the early societies? And shouldn't you emphasize this and look for it?

LEAKEY: The problem there is, of course, that the number of fossils found anywhere in the remote past is infinitesimal, chiefly because at that time man did not bury his dead. He did not do anything to preserve the body and the scavengers--the vultures, the hyenas--went for the remains, and the number of remains we find is very small. We do find a certain number of remains, and some of these have had death by violence, and not necessarily violence by a fellow man. Others have died in other ways. We cannot interpret in the remote past--we are still in the complete dark about many of the things you want to know. It is sad, but there it is. We haven't got the evidence.

QUESTION: This isn't a scientific question, but I'd like to ask Dr. Leakey if we are going to have to define ways of teaching peace, we're going to have to find these patterns that must exist to teach peace. Where are we to look for those of us who work with young people? Where shall you suggest that we look? Will it be in medicine? Will it be studying animal behavior? What is the field in your intuitive guess that would be the most favored place to look for those patterns?

LEAKEY: First and foremost I would encourage more and more mixing of people from different backgrounds, until they realized that they are all one and the same. That they think differently, in certain respects, that their colors may vary, their hair may be different, but, nevertheless, they are all men and women and that they, therefore, must work together for better things. As soon as people start mixing together, of different races and backgrounds, they begin to find so much in common with each other that the other things that are different fall apart. This is heresy in some circles, but I am certain it is true. Secondly, I think you have to distinguish in teaching the young between what I would call a "faith" as distinct from "religion." Today, as I see it, we are losing all faith--the faith that man has grown to a point where he has some awareness, some consciousness of right and wrong. But because of the destructive influence of dogmas and doctrines as distinct from faith, we are letting our young people lose faith, which they don't need to lose. And having lost faith, because they confuse faith with religion, they are not willing to abandon violence. You can't really kill people if you have a real feeling that they also have a faith and are meaningful in this life and the world. And in this connection I took some years ago a random sample of dossiers of people who had committed kinds of violence in this country. This is very important. Out of 100 random files which I was allowed to see, only three individuals admitted to any faith. All the others had no faith. If you have no faith of any kind, if you think you are just body, hair, skin, flesh, and nothing more, then obviously if I snuff you out today instead of letting you go on, it doesn't matter. But if you believe that that person is something worthwhile, you don't snuff him out. And I believe that you have to differentiate with the young people between real faith and false religion.

QUESTION: You have spoken of the time about 40,000 years ago when there was fire, long-range weapons, and about that time, abstract speech began. Where in this time spectrum--Dr. Leakey has now spoken about faith and the worth of the individual--when did the burying of the dead begin?

LEAKEY: At just about that same time--40,000 years ago, with the development of speech and art, and there is some evidence now of music and magic. At the same time there was evidence of burying of the dead and a belief in some kind of religion.

ARDREY: Red ochre. Very interesting. Burial with red ochre. There was not much with the Neanderthal, if any, but with Cromagnon who came in about 35,000 years ago came in the red ochre, which is an evident blood symbol, and life symbol, connected with the dead, which we find on the bones. It was a critical time.

LEAKEY: It was the last major milestone.

ARDREY: Everything went good and everything went bad.

QUESTION: I'd like to preface my question by telling you gentlemen that my husband is away tonight hunting.

ARDREY: That is all right. It is natural.

QUESTION: Isn't it animalistic ?

ARDREY: It keeps him from shooting you!

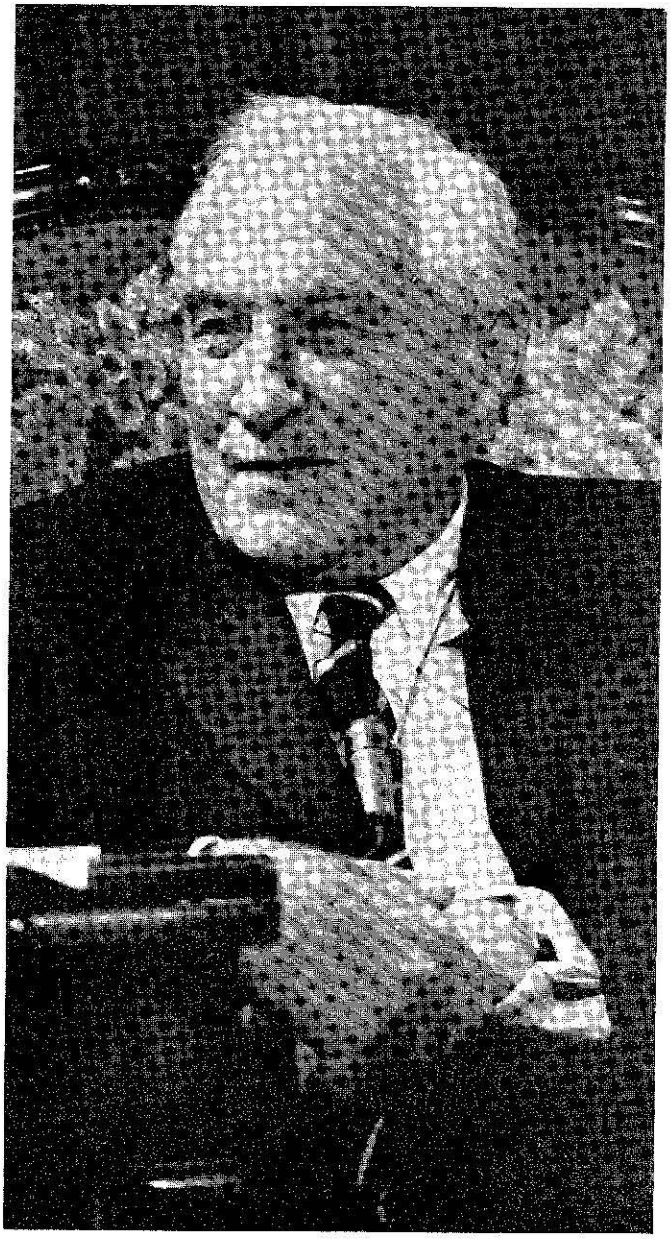
QUESTION: I'd like to ask Dr. Leakey about his finds out in Barstow, which are really of concern to Californians. The thing I would like to ask about is the discovery of fire--it being only 40,000 years ago when man first controlled fire. In our class we were discussing your dig the other day, and your first geologist dated your find at 30,000 years ago. Then a group of geologists came in and they dated it much earlier. There was a hearth that was discovered and that hearth is a very important part of your dig. If that hearth is a part of your dig and if it is dated 30,000 or 100,000 or 200,000 years prior to that, how do you explain this hearth that is in the center of your dig?

LEAKEY: An exceedingly good question, which I will try to answer briefly. Long before fire was made and before man could control and have continuous fire, man from time to time captured wildfire as we might capture a wild animal, took it to his home and domesticated it temporarily. And when for one reason or another--because he didn't feed it, or he was away when the rain came--the fire died, he couldn't remake it. He had no control. He could catch wildfire. Peking man spasmodically 300,000 years ago had fire for short times--then no fire at all for awhile--then there was another fire. Captive fire has been used by man. Man knew fire, but couldn't make it. Now, coming to this specific thing; the hearth is definitely there. The hearth is certainly more than 50,000 years ago because it is beyond the range of carbon. The hearth is a hearth because the stones have been burned from inwards, outwards. You don't get stones fired from the central point of the fireplace outwards to zero unless there has been an actual fire there. There was a fire, there was a hearth. But I cannot tell you whether that was a hearth of fire that they knew how to make continuously. It may be that they captured a fire, made a little circle of stones around it to keep it from being blown away by the wind, kept it long enough to survive for a time, and then lost it.

I don't know. Until we find a lot more similar signs, we don't know the answer.

MUNGER: I want to thank our two distinguished speakers for being so generous in coming this evening. We didn't expect them to engage in violence, and I think they have offered us a tremendous amount of penetrating thought. Thank you both.

Robert Ardrey



Louis Leakey

The color reproduction on the cover of these Notes is from the Victor Du Bois Collection of West African Art. The showing of this collection in April 1971 opened the new Baxter Art Gallery, the first permanent gallery of the Caltech Art Program. The exhibition had particular importance because, in launching a new phase of the art program, the show recognized the importance of work being done by various Africanists at Caltech.

Mr. Du Bois, a resident of the Ivory Coast and a member of the American Universities Field Staff, assembled the collection largely through his own trips into the African bush. A catalog of the collection may be obtained by writing Dr. David Smith in care of the Baxter Art Gallery. The price is $10.

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