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Elaine Morgan on Aquatic Ape Theory at UCL (Part 1)

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Next year is the 150th anniversary of the publication *On the Origin of Species* by Charles Darwin. And it's well worth celebrating, because it told us about natural selection, which is the key to understanding all living things, from slime moulds to ourselves.

There are two things which I find worrying about it. One is that although it's very good at explaining a lot of orchids and fish and birds, it's never been very successful at explaining ourselves. It doesn't tell us exactly why we became naked, or bipedal, or why we can speak and the apes can't, or xxx that kind.

For instance, we take one example: Why are we naked? On this question, they have not only failed to give an explanation, but they are now failing to ask even the question. If you

look at the last 20 books to be published on human evolution, including textbooks and encyclopedias 500 pages long, and there is not a mention in these books of the fact that we have lost our body hair.

Try to imagine that there was one naked species of bear, or a naked wolf, or a naked rabbit. And try to imagine anybody writing a whole volume about this species, and failing to mention the fact that they were naked. It's impossible. And I would think that if you got... Being naked might not be the most important thing about us. But it's certainly an important thing. It's a valuable clue. And if you've got narrative that can't account for that, it seems very likely that you're on the wrong track.

The second thing that worries me is because we haven't got any answers to these questions, we are now beginning to stop asking **the** Darwinian question. And that means that on the eve of this bicentenary, we are betraying him. Because the whole thing about Darwin was that he said: "If you want to know why a species changes and develops, you've got to know what habitat they were living in, what environmental pressures they were subject to, and that is why they changed." And now we have not got any idea and have stopped asking specific questions about what kind of habitat were they living in when they started to change.

What I am proposing to do is give you a brief history about ideas developed. An indication of the kinds of data that the aquatic theory is based on, and some questions about where we stand today.

When Darwin wrote *The Descent of Man*, he didn't have any clear idea about what kind of habitat they were living in. If you read that book, there is no indication there that he thought they were in any different kind of habitat than the chimps or the last common ancestor. He seemed to think that they were walking on the floor of the forest, rather than in the trees, but then gorillas do that.

And the first indication... For the first couple of decades after Darwin, that's what people thought. They thought: All right, these first humans, they were living in the forest. And to illustrate you've only got to think of Kipling's *Jungle Book*. He was interested in Darwin and evolution, and he thought they lived in the forest, like Mowgli. And you've only got to go to Hollywood and Tarzan, because Kipling's cousin Edgar Rice Burroughs wrote the Tarzan books, and they were envisioning the first naked biped with big brain swinging through the trees.

And that went on until the 1920s, when Raymond Dart found the Taung skull in South Africa. And he said: "I think this was the beginning of humanity. It's not quite like a baby chimp skull. It's got indications of humanity." And since it was found out on the savanna, he said: "I think that that is why we are different. It solves everything: the ancestors of the chimps and gorillas stayed in the trees, the ancestors of humans went out onto the savanna. And that is why they are totally different."

And from that point on, up until today, this is what has been taught in all our schools and universities, that they became different because they lived on the savanna. And of course they found a few fossils under what is now the savanna where you keep finding them. So they were convinced that to unravel all the mysteries, you have to find the bones, fossilized bones and fossilized teeth. And that will be the best evidence, because it's hard evidence, you know something really lived there.

There was only one man in England who didn't agree with this. That was Alister Hardy. And in 1930 conceived the idea that perhaps what explains our differences was not living on the savanna, but living in and near the water. He was brought to think that by reading in Frederic Wood Jones that he had cut open and analyzed a great many primates and a great many human cadavers. You could get them easily in those days. And he said "The thing that strikes me, is whenever you cut open a monkey or chimpanzee or a gorilla, you come straight to the tissue. When you cut open a human the first thing you come to is the naked skin and a lining of fat. Why have we got this lining of fat?"

And Alister Hardy was a marine biologist. So he knew that this happens if you start cutting open a seal or a dolphin or a great many aquatic mammals. What they have got is naked skin with a lining of fat. And he began to look for other reasons why this might explain human beings. And it occurred to him that if you are a four-legged quadruped, an ape or a chimpanzee walking into the water, before you get in very far you've got to stand up on two legs in order to keep your head above water so that you can breathe.

He knew, as he has said on film: "I wanted to be a professor. I wanted to be a fellow of the Royal Society. I knew I couldn't do that if I told anybody what I was thinking." So he sat on it for 30 years. And then finally it got loose. He was in a ... He had got his professorship, he had got his fellowship, and all the honors that can come, he ended up being knighted for his services to science, so he was no crackpot. But he thought he could try it out on the Subaqueus Society in Brighton. And he said he had been thinking about this, he thought: "I'll just see how it goes down". But in the back row, there was a local reporter sitting, and the local reporter knew he'd struck oil. And he took the story to Fleet Street, and all the Sunday papers said "Oxford Professor Said Man is a Seal." And all of Alister's colleagues and superiors in the science department of Oxford came down on him like a ton of bricks. "How could you let Oxford down? How could you betray us and make fools of us by giving such a silly idea? And you must never do it again. Shut up." So, he did shut up. And it quickly got forgotten and it was forgotten about for 10 years, until I took it up for the first time in 1972.

There was a couple of lines about it in Desmond Morris's book *The Naked Ape*. And I thought, this feels right, it feels intuitively right. Now if you tell a scientist "It feels intuitively right." They say "Well, that's rubbish. You're not thinking scientifically." On the other hand, they have a lot of people who feel it's intuitively wrong, and get furious with it. So it's not good going by intuition. We have got to go by the data.

This theory has been miscategorized. Partly because it was given a lot of publicity in 1972 by a book I wrote called *The Descent of Woman*. It was a best seller, in America it was a book-of-the-month-club, it went into nine languages. And so people thought: "All this idea about aquatic origins. It's been dreamed up by a Welsh housewife with no scientific qualifications whatever". But if they tell you that, never forget: it wasn't me who started it. I would never have thought of it in a million years. It was Alister Hardy, knighted, fellow of the Royal Society. And he has not spun it out of his head in telling people. He had been sitting on it for 30 years and found nothing wrong with it.

So, what are the kinds of evidence that are advanced in its favor? Well, the approach by the aquatic theory people is: "Let us make a list of the ways in which we differ from apes. Nobody seems to have done that. And let us find: Where else do you find these characteristics?"

Where else do you find naked animals? Nearly always in the water. Sometimes its seawater, like the dolphins and the manatees, and sometimes its fresh water like the hippopotamuses. But they are nearly always in the water. And we are coming to realize that the very few naked animals on the land, like the elephant, probably, almost certainly, had aquatic ancestors. So that in other animals where you get nakedness is through connection with water.

Where else do you find anything like walking on two legs? Nowhere. Neither on the land or sea. But we do know that the only time when a chimpanzee or a monkey or a gorilla walks on two legs steadily, is when they are wading through water. You may have seen David Attenborough in *World of Mammals* filming a gorilla going into a swamp to pick the plants there. And as soon as they go in water, all these primates do walk bipedally, and consistently, sometimes for quite long distances. As soon as they get back on land they go back on their four legs again.

Where else do you find an animal with fat-lined skin? Always, they are aquatics.

Where else do you find a mammal with a descended larynx? We are the only primates with descended larynx. Until last year, we were thought to be the only land mammal at all with a descended larynx. Now they have found an American deer that has got it. But you can find them, not always, but quite commonly, among some aquatic mammals.

Another thing that is brought up is the question of where we got our big brain from. And one thing was, how did we get the nutrition for it? Michael Crawford of London, he said that the thing about building a brain is that you've got to get a 50-50 balance of long-chain and short-chain fatty acids, omega-6 and omega-3. And he said the one place where the food chain supplies exactly that kind of balance is in the seafood chain. And he thinks that it was eating food from the sea which enabled us to have brain expansion of such a rate late in our evolution when it became necessary.

We cannot smell as well as the other apes. The olfactory bulb in our brains is only half the size. The olfactory brain in the whale has disappeared altogether. And you do find that the more aquatic the animal becomes, the less good its olfaction, obviously because it's not breathing air all the time.

We have got voluntary breath control. None of the primates have got voluntary breath control. All diving mammals have got it, and all diving birds have got it. And this is precisely why an ape cannot talk and we can talk. It doesn't explain why we can talk, but we know it's an indispensable precondition. We could not have learned to talk without that breath control. You can't teach an ape, not only you can't teach it to talk, you can't teach it to say "Ah" because it's got no voluntary control. It's one of those things that it can do but it can't do at will. It's like an erection. You know you can do it, but you can't order it to come. An ape can't order itself to vocalize.

Look at our babies. A newborn baby has got twice times as much fat in its body as a newborn baboon. Why should this be? Well, one reason might be that it helps them to float. We have film of nice plump babies, lying on the water, unsupported, rolling over and turning over again so that they are facing up. And that might have been one reason for it.

We are, and this again was thought until a year ago, that we were the only animal where the baby, if it's born only a few days prematurely, a human baby, is covered with a slather of cheesy stuff, which they call vernix, and all that needs to be wiped off. And none of this

had been found in other mammals. And I had just left the question: "Why is it there?" And then one day when David Attenborough was making a radio program about this, he said or he found out, or his producer of the program found out, that there is one other mammal whose babies are born covered with vernix, and it's the harp seals.

Then we've got... We are the sweatiest mammal in the whole of creation. And Alister Hardy found it hard to believe understand why if were out on the savanna why would we be sweating so profusely? We wouldn't have been able to afford to lose all that water.

Somebody told me once that it can't be true, because if we had been aquatic we would have been streamlined like a dolphin. But I ask you to visualize a diver with hands above his head, diving into the pool and hardly making a ripple. And then I ask you to try to imagine a gorilla trying to perform the same manoeuver and see what a splash it makes. And the only way to define the difference between these two figures is that humans are beautifully, extraordinarily well streamlined, to enter the water in that way.

Altogether, these things are not invented off the top of our heads. They're not hearsay, they're not like UFOs or I've heard somebody say that they've been captured by a thing. They are solid, measurable, scientific facts. But all these have made no impression on the scientific community as a whole, because they've said "We don't need it. We don't need another explanation of all these things, because we've got the explanation. The explanation is because they went out on the savanna." And that was held to be true for more than half a century.

Then something happened. I don't know what you've heard about it. It was a dramatic thing to happen, but it happened very quietly. They suddenly found that these savanna sites where the human fossils had been found, were not savanna at the time when the hominids were living there. There were trees there. They had a new technique for examining fossilized pollen. They could put it under a microscope, and they could find out what kind of plants that pollen would have evolved into. And it was not savanna pollen, it was woodland pollen. Some of it was even pollen from lianas, those draped things you only get in the thick jungle. So, what were they going to do about that?

The most highly praised and valued scientist in South Africa was Philip Tobias. He was the man who named *Homo habilis*. He was at the top of his profession. He had been a paleontologist for years. When he learned about this he came here to University College London. He was invited to come to deliver the Daniel Ford Memorial Lecture. And he came and said "I have believed in the savanna theory all of my life. And I've come here to tell you that you were wrong. We were wrong all the way along. We've got to go back to square one. We've got to think about it all over again, because all that was wrong." Now, this time there was no reporter in the back row, and nobody had headlines all over the Sunday papers: "South African Professor Said Man A Sea-Ape".

It was all kept very low key. He was enthusiastic about it. He said: "You know, this is exciting. We have proven something different and now we've got to think it all up again. Isn't this a marvelous opportunity!" But he was not treated as if it was a marvelous opportunity. He was treated as if had been very tactless and bad manners of him to come and tell them that they had all been wrong. Almost none of it got into the papers. Is it because he was wrong? No. If you read very carefully, there was a little bit in *Nature*: "The savanna hypothesis of human origins, in which the cooling system begat the savanna and the savanna begat humanity, is now discredited." There was one little bit in the *Journal of*

Human Evolution: "Recent evidence suggests that the common supposition that Australopithecus was grassland-adapted is incorrect."

So they didn't say he was wrong. They knew he was right. But they just ... It was the same as they said about Darwin. They said: "Well, if it's true, let us at least hope that nobody finds out about it." And they seemed to take the same attitude toward Tobias. They carried on as if nothing had happened. They don't tell you: "We're at a loss and we've got no reason at all to explain why humans are different." They carry on as if nothing had happened. Why do they do that? This is what they always do.

If you read a book, quite a famous book at the time, by a philosopher called Thomas Kuhn. He was talking about the structure of scientific revolutions. And he said this, that people get the idea that science is created by people assembling facts and confirming them, and knowing that it is safe to build on. And every scientist that comes along puts another little brick on that structure and it grows higher and higher, and it's absolutely solid. And he said, but that is not how some of the great advances take place. From time to time, somebody comes along and says: "I'm not going to put a brick on top of that pile. But I'm worried about this brick halfway down and I want to take that brick out." That is in fact what Tobias was doing. The brick was the savanna theory and he wanted to take it out. And of course this caused immediate consternation. Because nobody knows how much of the superstructure is going to collapse if you take out that one brick. So on the whole, they tend to go on, if somebody does that. Ignore it, and pretend it hasn't happened. And that is the position in which science of evolution is being carried on today. They know the savanna theory was wrong, but they go on using the same language. And Thomas Kuhn said that is what they do. If a paradigm collapses, they've got to go on using it, because you can't ask questions unless you've got some framework. So they carry on with it.

In fact, some people have got to the point of saying quite frankly: "Perhaps we need to stop worrying about selective pressures. We must stop asking that Darwinian question, about what changed them, what the habitat was, because we can't answer it. So we'll just concentrate on something else." Now this was the opposite of what Darwin believed. He called this hypothesis-free science. And he was, he had complete contempt for it. Because in those days there were a lot of people doing hypothesis-free geology. They were picking up pebbles of different rocks and stones and studied them and classified them and we'll give them all names and numbers. But we won't ask why they're there. Why did this chalk come on top of the mountain. And he said there's no xxxx, you've got to ask why. But at the present moment, the powers that be have stopped asking why, and they're quite open about it.

Now what Thomas Kuhn said, was "They carry on with the old paradigm until a better one comes into sight. Until they've got an alternative." The curious thing, though is that there is an alternative there. There is a perfectly good alternative in aquatic theory, but they are not willing to look at it.

There are two reasons why it is particularly hard for them to accept it at the present time. For one thing, if you look at some previous scientific revolutions, which did work, it usually meant that some new discovery had been made. For instance, there was the change when people started believing in continental drift. Wegener had been saying, again for about 30 years: "I think the continents move, because look -- if you look at the bottom of that continent, the bottom of that continent, they've got the same kind of rocks, structural trends, similar animals, similar plants. And however many things that he did,

they said "No, we can't look at it because continents don't move." Then they suddenly found a mechanism by which continents can move, and it was all right, he became a hero.

Another change was, when I started writing in 1972, everybody said that humans split from chimpanzees 20 million years ago. It must have been a long time, because look at how different we are. It must have taken at least 20 million years for all these changes to take place. And then the geneticists came up and said: "No, it was merely 6 million years ago." And on the whole, fairly quickly, that paradigm has changed because something shockingly new had suddenly happened.

In the case of the present paradigm shift, it isn't that something new has suddenly happened. What has happened is that very slowly, evidence in favor of the aquatic theory has been accumulating. And very slowly, all the reasons for believing in the savanna theory have been withering away. But it happened so slowly that they never felt well now is the time we've got to do something about it.

You can't change these things very suddenly, and of course the tendency is, if you've been teaching something that's been wrong all your life, you're not very anxious to suddenly stand up and say: "I'm sorry I was wrong. Back to square one. Let's start again." And in the case of new scientists, they've got to be very careful. They can't move faster than anybody else. Here is what Lawrence Krauss told me. "There is no excuse for a popular-science writer, editor of a publication to present material that is outside the scientific consensus as if it were accepted. It is most appropriate to err on the side of caution, and print no information, rather than misinformation. This is not censorship in its common sense. It may mean delaying the scoop of the century. But only by a little bit. Because the good stuff will always rise to the top."

Now, there is good stuff in the aquatic theory. Nobody has been able to prove otherwise. They are saying it will rise to the top. Alister thought it would rise to the top. I wrote, I've written six books about it all together. I was counting like mad, up until the 1990s. And then I thought, well, it will rise to the top. Now we know that the savanna theory is wrong. It's bound to rise to the top. But it isn't. They are much too comfortable with it the way it is. And they're just trying to shade it. They say: "Well, it was no savanna, but it was savanna-woodlands, it was savanna-mosaica. Anyway, the trees might have been a little further apart. Of course we're not saying that there might not have been water there. We'll call it a mosaic-environment, or a riparian environment, meaning a riverside environment."

And the only people, it seems that the other thing that's threatening them is the creationists. They've got these creationists coming up and saying: "You know, we've got to go back to the Bible." And they feel in a time like this, we've got to cling together and not disagree with one another, and not allow any weaknesses in anything we've ever said. It's something like the terrorists, and the 42 days. We've got to keep them in custody for 42 days, just in case. And it seems to me that the scientific side is to think we've got to keep the aquatic theory in custody for 42 years. And it's only been there there for 35 years xxxx so we can't let it go yet.

But there are some people that are beginning to come out of the woodwork, and out of the closet, and say: "What about it?" That was Tobias. but as Thomas Kuhn said: "When you have a scientific revolution it doesn't start from inside the scientific community. They are far too committed for what they've got. So that George Wegener was an outsider, I mean Alfred Wegener, because he wasn't a scientist. And it always happens that the

people who start sniping at it are really, I mean even Alister Hardy, they said, "Well, he's a scientist, but he's not an anthropologist. He was a marine biologist. He knows about fish, but he has no right to butt in on anthropology and throw his weight about there."

And there are some people who are connected with science, but not directly in it. There is a famous scientific philosopher, called Daniel Dennett, in America. He's a very big name. And he says that: "Whenever I meet paleoanthropologists and people like that, I always ask them: "Why can't we believe Elaine Morgan?" And I've never gotten a straight answer from any of them, except from the ones who say: "I've often wondered that myself."" And so Dennett has come out and said it, he wrote 4 pages in his Darwin book saying: "I can't see why we don't accept it." And another semi-outsider is David Attenborough. I mean he knows as much about the animal world as anybody on God's Earth. But he is not in academia properly. He deals in the media and they can't touch him for it, as they say. If he says it, it is no danger to his profession and he has conducted two, presented two weeks of discussion of it on radio. It is very hard to get it on television, but you can get it on radio.

So when we start today, I think it's exactly what Krauss said: "The good stuff will always rise to the top." People know it's rising to the top. But, I'm sure that it will, within the next 10 years, at least. But what I wish very much is that a few people in the scientific community would have the guts to come out now in Darwin's year, and say: "We were wrong. There is a terrific amount of evidence of that we thought, was wrong. We can't go on forever saying we're not going to ask what the habitat was like, and something can be said for the aquatic theory."

And what would it cost them to say: "Let's look at it."? It would cost them nothing. There is nothing in this theory that is incompatible with what the bones of the apes are telling them. There is nothing in this theory that is incompatible with what the geneticists are telling them. It would fit perfectly well into all those studies.

Now in the early twentieth century there was just this kind of stand-off between Darwin and Mendel. There was the supporters of Darwin who said that Darwin was right, and supporters of Mendel who said that Mendel was right. And then there came three men, Ernst Mayr, George Gaylord Simpson, and Theodosius Dobzhansky. And they got together and they wrote a book called *The New Synthesis*. And they said: "There is no point in arguing who's right, Darwin or Mendel. They were both right and with a bit of trouble we can get them fused into a new synthesis." And by next year, in the course of next year, we should be able to do the same thing, get a new synthesis which fuses Darwin and Mendel and Hardy. And then we will explain why we are so different.

As it is now, when the creationists say: "Well, if man was not a special creation, why is he so different from the others?" We've got to say: "I don't know." But if we have this synthesis, we can say: "I know why we are so different: because he is the only creature who has passed through a stage of arboreal behaviour, followed by a stage of semiaquatic behaviour, and a blend of these two makes a lot of things possible, that have never been possible before."