ORIGIN STORIES
THE LEAKEY FOUNDATION PODCAST

Origin Stories 10th Anniversary Episode

[00:00:00] Meredith Johnson: This is Origin Stories, the Leakey Foundation podcast. I'm Meredith Johnson, and I've been saying this to you about once a month for a full decade. It's our 10th anniversary, and today on the show I'll tell you the origin story of Origin Stories. We'll go behind the scenes, revisit some milestone episodes, and I'll update you on some exciting developments in a story that's close to my heart.

[00:00:30] Before we get into it, I need to ask for your support. In this moment when federal research and education budgets are being slashed, you can keep human origin science going strong. Every donation will be matched, so your impact will be doubled. In celebration of 10 years of origin stories, please consider giving $10 a month to help support this show and the critical research we talk about.

[00:00:54] We're the only 100% donor supported nonprofit dedicated to funding human origins research. And right now we need all the support we can get. Go to Leakey foundation.org/origin stories or click the link in your show notes. Your gift will fund this show and directly support the science we talk about. Now, here's our story.

[00:01:18] I remember the exact moment. The idea for this show was born. It was in 2013, just a few months after I'd started my new dream job at the Leakey Foundation. I was organizing school visits to bring scientists into classrooms and planning lectures at museums across the country. It was exciting and more than a little overwhelming.

[00:01:40] For the first time in my life, I was spending time with scientists and learning who they were and why they do what they do. So it's May of 2013, and I'm at one of my first public lectures, a symposium on Paleolithic Art at the Field Museum in Chicago. I was there with one of our speakers, the foremost French expert on paleolithic art, Jean Clottes.

[00:02:06] Jean Clottes: You see in, in this big chamber, which is really huge. It's the biggest in the cave. There are no paint tags except right at the end.

[00:02:15] Meredith Johnson: I'd seen him in Werner Herzog's, Cave of Forgotten Dreams.

[00:02:18] Werner Herzog: The paintings looked so fresh that there were initial doubts about their authenticity,

[00:02:24] Meredith Johnson: but never imagined I'd ever meet him.

[00:02:27] I remember standing at the back of the auditorium with Don Dana, the then president of the Leakey Foundation. Don and I are watching everyone shuffle into the auditorium. The Leakey Foundation's been doing public lectures since its beginning in 1968. But the appetite for science lectures in 2013 wasn't the same as it was in the 1960s, and a lecture hall can only hold so many people.

[00:02:53] If you weren't there, you'd never hear it. I watched Don watching people take their seats, and he turned to me and he said, we've got to try something different to get this science to more people. In that moment I thought. The Leakey Foundation should have a podcast

[00:03:15] I was in love with, what was then a pretty new medium of narrative podcasts. I spent my commuting hours on the 1 0 1 listening to shows like this American Life, snap Judgment, love, and Radio. The design show, 99% Invisible, and a San Francisco history show called Sparkletack. I thought there should be something like 99% invisible, but for human evolution.

[00:03:39] I pitched the idea to our executive director, Sharal Camisa Smith, and we wrote a proposal. In 2014, Don Dana gave us funding for six pilot episodes. So I started to hunt for someone who could make the show, and that's when Sharal said she thought I should be the one to do it. The problem was I didn't know how, so I got to work learning everything I could about audio storytelling.

[00:04:04] I built myself a crash course in science writing, audio production, sound design, interviewing. I got a microphone and a digital recorder and I took them with me everywhere.

[00:04:15] SFX: Okay, test, test, test, testing. No, that's the problem. Okay,

[00:04:20] Meredith Johnson: recording walks in the forest.

[00:04:24] SFX: I see a squirrel looking right at me.

[00:04:26] Meredith Johnson: Sounds around the house.

[00:04:27] SFX: What do you have to say kitty?

[00:04:30] Meredith Johnson: And my friends at parties.

[00:04:31] SFX: Toast. Yeah, let's do the toast.

[00:04:38] Meredith Johnson: I did some awkward first interviews with scientists. Okay. I'm gonna check the levels. Can you tell me what you had for breakfast today?

[00:04:46] scientist: I had a Star Wars low carb, death star waffle

[00:04:51] Meredith Johnson: and eventually after hundreds of hours of work and a lot of help from a lot of people, we had our first episode.

[00:04:58] A 13 minute story from a paleoanthropologist named Carol Ward about how and why humans walk around on two feet. It was released in the spring of 2015, and I loved the way Carol told the story of how she first fell in love with her

field.

[00:05:14] Carol Ward: I remember walking in and my professor, who's a man named Dr. Milford Wolpoff who was one of the leaders in the field, he said, I'm a paleoanthropologist, and he wrote that word on the board and he turned to us and he said, the Earth is a disc riding on the back of the giant turtle, and the stars are painted in the canopy high above us and he just looked at us and we argued about it for two days.

[00:05:38] No, it's a sphere. We know that. And he would say, how do you know? How do you know? And it took me about 20 years or so to realize he was talking about how science works and testing hypotheses and trying to falsify ideas and how it all worked. How can you learn things? How do we know and how do we know about human evolution?

[00:05:55] I got excited in the process of learning as much as I got excited about the actual fossils themselves. Then I was hooked

[00:06:03] Meredith Johnson: listening back to this first part of this very first episode. I feel excited because what Carol said here is exactly the purpose of this show. To explore together how science works and to learn how we know what we know about our shared human story.

[00:06:20] And to me, another core mission of Origin Stories is to connect you with scientists so you can hear their stories and the curiosity and questions behind their research. To show the human side of science and make it personal because after all, the science is about us as humans. Carol was the perfect person for our first episode because she's a natural storyteller and teacher.

[00:06:45] She's great at explaining things, and her work was looking at one of the fundamental questions about what makes us human, which I thought was a great starting point for the show.

[00:06:56] Carol Ward: Darwin, pretty good evolutionary thinker. Thought that we stood up right on two feet to free our hands from making and using tools, and that's why we had big brains.

[00:07:06] Well, that was a pretty good idea, but the fossil record shows us that our ancestors stood up right on two feet, maybe as early as four or 6 million years ago. We didn't probably start using tools regularly or stone tools until around 3 million years ago, or even more recently, and our brains didn't get very big until 2 million years ago.

[00:07:25] So knowing that standing upright set the stage for all of these things that happened later. Means that we can start understanding how it happened and then asking the important and interesting questions, which is why it happened.

[00:07:41] Meredith Johnson: I said earlier, this story took a really long time and a lot of help to make, and it did about a year from recording the interview to actually getting the podcast up and published.

[00:07:52] This was the first piece I made as a producer and sound designer with Audrey Quinn as story editor. This piece was also a first for Audrey in her career move from reporting and producing to editing. Now, 10 years later, she has a Pulitzer Prize for her editorial work. She teaches audio journalism at NYU, and she's still the editor for our show.

[00:08:16] A journalist named Lisa Morehouse also played a major role in this episode. She came with me to interview Carol to help manage the recording so I could focus on asking questions. Without worrying if I forgot to turn the recorder on. One of my favorite moments in the story came from a question Lisa asked.

[00:08:32] It's one of the surprising kind of moments that make this show so much fun to produce. Here's that question and Carol's answer.

[00:08:41] Lisa Morehouse: My question really, I'm just avoiding getting to my

slightly embarrassing question, which is I feel like we, this term knuckle dragger is out there in the world.

[00:08:50] Carol Ward: Oh, sure.

[00:08:50] Lisa Morehouse: Does this mean that there weren't actually knuckle draggers?

[00:08:53] Carol Ward: Oh, this is a great question. This is what the whole lecture gonna be at seven o'clock. Um. Well, the question people always ask about human evolution is, why did we stand up from all fours? And if you watch a chimpanzee or a gorilla moving across the ground, you'll see them walking on their feet, but also on the knuckles of their hands because their hands are so big and long and hooked, and their arms are so big and their backs are so stiff they can't really walk upright because they're so specialized for being able to hang below branches to get.

[00:09:21] To the fruits at the ends of the branches of trees. If we look back at the fossil record and dial back the clock earlier than earliest hominids, so around maybe nine, 10 million years ago, what we see is the fossil apes that seemed to be closely related to what our ancestors might have been, certainly hung below branches.

[00:09:40] They held themselves upright in the trees and they climbed and they swung below branches, but they weren't as specialized anatomically as chimpanzees and gorillas. And animals will move how they move. If they were upright in the trees, they'll tend to be upright on the ground. So probably these animals just also just stayed upright and moved on the ground, whereas our ancestors just never dropped down all fours.

[00:10:02] So I think the right question to be asking now is not why did we stand up from all fours, but why did we never drop down on all fours to begin with? Yeah. How about that? Huh? That's my new schtick.

[00:10:18] The next story I wanna share is from an early episode called Ancestor. It was about a discovery that made headlines around the world, but more importantly, this story was about the extraordinary person behind it. Isaiah Nengo, a primate paleontologist from Kenya. Whose impact on the world extends far beyond his research.

[00:10:42] The story starts at the end of a long, frustrating day in the Turkana Basin. Isaiah Nengo team had been searching for weeks at their field site, a place called Napudet, and they hadn't really found anything.

[00:10:55] Isaiah Nengo: Nothing. We didn't find a single thing, and so it's time to go back to the camp and everybody's kind of in a foul mood.

[00:11:03] One of the field assistants, Johnny Ekusi, uh, pulls out a tobacco to roll a tobacco cigarette. So we chase him and we say, Hey man, you're gonna kill us without smoke. Go and smoke somewhere else far away from us. So he walks up, uh, ahead of us about maybe, you know, a couple hundred yards, and then we see him, uh, walking around the same spot.

[00:11:26] We talk to each other, say, well, what did you find something? Why does he keep going around the same, in the same spot? So we pick up pace. As we get closer, we yell at him, John, Hey, did you find something? And he goes, oh yeah, I think I found something. We ask, what is it? He says, oh, I think it's the knee of an elephant.

[00:11:44] So we, we go and, Cyprian Nyete the supervisor pulls out a brush, he brushes the, the top. And instantly we knew. It was a primate skull, and we, we started shouting and screaming and, and jumping up and down.

[00:12:05] Meredith Johnson: What they'd found was incredible. A 13 million year old fossil skull of a baby ape, they nicknamed Alesi. It was tiny, beautiful, and nearly complete.

[00:12:17] The oldest and most well-preserved fossil ape skull yet found. And it showed what the face of the last common ancestor of apes and humans would've looked like. I first learned about Alesi during one of Isaiah's visits to the Leakey Foundation office. He was teaching at a community college not too far away, so he'd sometimes come to have lunch with us, sharing stories about what he'd been up to.

[00:12:41] He told us about the fossil they'd found in Napudet. He said it would soon be published in the Journal Nature. And when he asked if I wanted to help publicize the discovery, I jumped at the chance. By then, I'd moved from planning lectures to doing communications work and collaborating with Isaiah on sharing the Alesi story was one of the most exciting projects I'd worked on.

[00:13:02] As we worked together, I learned about him and his story, and we became friends. Isaiah Nengo died suddenly in January, 2022 after a short illness. His passing was a great loss to everyone who knew him and to the scientific community. He was here for too short a time, but he left a legacy that's continuing to change people's lives.

[00:13:27] Isaiah Nengo grew up in Nairobi, and he was first introduced to the idea of evolution during a high school field trip. To hear Richard Leakey speak at the National Museums of Kenya.

[00:13:37] Isaiah Nengo: We matched into this auditorium. There were several high schools. It was packed capacity. And um, then this tall white gentleman draws in and introduces himself as Richard Leakey, and he gave us a talk on plate tectonics, which was still a brand new hypothesis.

[00:13:58] And he talked about evolution, and I was just fascinated. It was just something that resonated, the stories that he was telling, and I began to take an interest in evolution in general, and I thought this makes sense.

[00:14:11] Meredith Johnson: That fascination stayed with him through high school

where he studied chemistry, biology, and physics.

[00:14:18] He went on to college and after graduating with a degree in zoology from the University of Nairobi, Isaiah went to Richard and Maeve Leakey asking for a job at the National Museums of Kenya. When they turned him down, he volunteered and Maeve gave him the task of curating and organizing a fossil collection of mammals from a time period called the Miocene, which stretched from around 23 million years ago to about 5 million years ago.

[00:14:45] Isaiah Nengo: I volunteered for three months. I was the first person in, I was the last person out, and I, I, I just had so much fun. It was, it was the Miocene. She introduced me to the Miocene and she turned me loose in the Miocene collection. So I went through every single one of the Miocene mammals in the museum collection one by one.

[00:15:09] You know, I was just learning about these things that were extinct, and I remember I would meet with my friends after work and I would, I would regale them with tales about these wonderful creatures of the past, and many of them didn't understand why I was so excited.

[00:15:24] Meredith Johnson: Isaiah had found his calling. He fell in love with the Miocene and he wanted to make it the focus of his career.

[00:15:32] The Leakeys encouraged him to apply to graduate school and get a PhD. He ended up at Harvard where he excelled, earned a doctorate and formed questions that drove his later research. Here's what he said in the episode.

[00:15:46] Isaiah Nengo: So the, the, the key question has been, you know, what is man's place in nature? It's what we wanna know.

[00:15:53] So you cannot answer that question without what. Without looking at the apes you cannot answer the question of humans place in nature, just by looking at humans. So if we are looking for the missing links or the ancestors that connect

humans to chimpanzees, to the lesser apes, the gibbons, all of that, are to be found in the Miocene. My interest in evolution is to address these types of big questions.

[00:16:28] Meredith Johnson: After earning his PhD, Isaiah became a professor and a research scientist with funding from the Leakey Foundation and other sources. He led field work and he joined Richard and me Leakey as a colleague and eventually associate director at the Chana Basin Institute.

[00:16:44] In 2017, he became a professor at Stony Brook University. Throughout his career, Isaiah was a dedicated teacher and mentor to so many students and fellow researchers. He sought to open doorways, so the other aspiring scientists might experience the same sense of wonder he felt as a volunteer at the National Museums of Kenya.

[00:17:05] Not long after joining Stony Brook's faculty, Isaiah helped create Africa's first master's degree program in human evolutionary biology. He designed the program specifically to help build up a new generation of African scientific leaders. The impact was immediate and dramatic. The Leakey Foundation's Baldwin Fellowship program, which supports graduate students from places with fewer resources for advanced education in human origins, had been giving six to 10 scholarships a year since 1978.

[00:17:37] Because of Isaiah's mentorship and the program, he started that number more than doubled. Each year since Isaiah's passing, we've awarded on an average more than 20 Baldwin fellowships, many to Kenyan students. Isaiah directly mentored. Each of these scholars will ask their own questions, make their own discoveries.

[00:17:58] And mentor their own students.

[00:18:03] Now to our last featured story and a really exciting update in April, 2020, during the early months of the COVID Pandemic, we did a story about a community of indigenous people called the Punan Batu, the last traditional hunter gatherer community in Borneo. I first learned about them in 2019 when the Leakey

Foundation gave a grant to anthropologist, Stephen Lansing.

[00:18:27] Steve had been working with Indonesian colleagues on the genetics and languages of the Indonesian people. They were working among other things to figure out where the indigenous people of Indonesia's ancestors came from, because the people didn't know and they wanted to find out. As they were doing some of this work and hosting a medical clinic in a remote part of Borneo, Steve was approached by the elected leader of a resettled community.

[00:18:53] The leader asked Steve if he wanted to meet a group of people who were still living as mobile hunter gatherers in caves in the forest. He quickly said, yes. They made arrangements, and a few months later, they made the journey by boat and then on foot through the forest to meet the pun, Batu. Here's a bit of that story.

[00:19:18] Steve Lansing: We walk for a few hours in the jungle, and then we come to an overhanging cave. It's kind of a jagged limestone cave in lowland forest, very dense forest, and there were some people sitting on bamboo platforms underneath the overhang. So we came up and began to talk to them. There was a young mother there and an older man, and then I realized that he was speaking Malay, which is a language that I speak, so I asked.

[00:19:51] A couple of questions. Turned out they speak quite fluent Malay. So to my astonishment and delight, I could carry on a conversation with Marni. I know her very well. Now, Marni and her daughter Nin.

[00:20:07] I asked about hunting and gathering and is it true that, how do you know? How do you, what do you do with, how do you support yourselves? How can you live? And Marni says, well, men hunt, women gather This is right outta the anthropology textbook. And we share the food. Wow. Really? They must be reading the anthropology textbook to give that answer, but in fact, that's the case. Anyway, so, so we started to talk and they were very friendly and it turned out to be

[00:20:41] when they were, came to talk to me. So I can't by the cave. And at night I

heard singing. Happy singing. It's kind of a duet. It went on for a long time and it didn't sound like any of the austronesian languages that I, that I know that I recognize.

[00:21:06] So the next day I asked them. What is it? And they said, well, that's the song language. And I said, well, could I record some of it? Could I record some of the, you know, the video recorder? And they said, yes, but we have to be lying down and we should be in the cave. It's usually done at night. We need to be lying down.

[00:21:26] So we recorded that. We recorded the song language. Uh. And that turned out to be a very interesting language, and I've been pursuing what that language means, what it's about since then.

[00:21:46] This is one of Steve's recordings of the song language. It's sung by a young man named Marut who sang it in a place the cave pun called The Great Cave. This is the first time this recording has been shared publicly, so you are one of the first people to hear it.

[00:22:09] The singer tells of how he used to be invincible, like a porcupine, but now he says it seems that I am weak. Yet, even though I may no longer have the strength to travel far into distant places, I hope that will be my destiny.

[00:22:26] I asked for my journey to be successful.

[00:22:34] Meredith Johnson: This song language turned out to be completely different than the language the Punan Batu spoke during the daytime. Actually different than any known language, and they had another amazing language using sticks and leaves to share information and send messages over long distances in the forest. In the episode we dug deep into the Punan Batu's way of life, how they share with each other, their languages, and the scientific work that came after Steve's first meeting with the Punan Batu.

[00:23:01] This next clip introduces what I wanna catch you up on. The Punan Batu

had welcomed Steve and the other scientists because they had an urgent need for help. The forest was being cut down for oil palm plantations, and those plantations were coming closer and closer. They were worried that there would be no future for them or their children.

[00:23:22] They wanted Steve and his colleagues to get the word out about their situation and to help stop the destruction of their forest before it was too late.

[00:23:30] Steve Lansing: Um, that's what they want. And it's not a lot, I mean, it's not a very large area. It's maybe 50, 60 families, something like that. So it's not enormous.

[00:23:41] There's a lot of Borneo, there are plenty of oil palms elsewhere. We think. We think it's very doable, but it needs to be done. And the Punan have no clue how it could be done. I mean, they need help to set that up. There are good, uh, NGOs in, in Indonesia. I think it's, I think it's just a question of putting the pieces together.

[00:24:00] So they travel mostly. If they're not on foot, then they're in little, um, dugout canoes that go up and down the river. And it would, it would be pretty easy to make it possible for the kids to get some education. All this should be chosen by the Punan, but step one is to give them the option, right? I mean, the first thing to do is to create the opportunity so that they can make their case for, um, their forest and preserving their way of life.

[00:24:40] Meredith Johnson: Steve recorded this song. That's a message from the Cave Punan people to all who might help. It was sung by an elder, well-respected member of the community by the name of Ogat,

[00:24:58] Steve Lansing: and he sang it in, in the Great Cave, the cave that is sort of the origin cave for them. And his song, I can't quote it completely, but what he said is we, you've been coming and. We have spent much time with you. We've had many visits, and we hope that you will be able to help us, that this will bear fruit, that you'll be able to help us, uh, retain our forest, get our forest, keep our forest.

[00:25:40] Otherwise, they say quite simply, we don't know. Um, our children could starve. I mean, they, they think their fate is dire if they can't fix it.

[00:25:49] Meredith Johnson: So after we recorded our first interview for this story in 2019, The Leakey Foundation's executive director, Sharal Camisa Smith, and I stayed in touch with Steve and before this episode even came out, he connected us with the Asia Pacific Branch of the Nature Conservancy, who let us know how The Leakey Foundation and our donors could help.

[00:26:10] By raising money for the additional scientific research needed to make the case for the Punan Batu's rights to their land, which we did. And through the work of the Punan Batu, the scientists, the Nature Conservancy, a local environmental organization called YKAN, leaders in the Indonesian government, and others, the Punan Batu are now on the cusp of having full protections and acknowledgement as a traditional community with rights to their lands.

[00:26:36] Well, I'm just really, really happy to see you again and to have a chance to talk 'cause it's been a while.

[00:26:42] Steve Lansing: Likewise. Likewise, Meredith.

[00:26:45] Meredith Johnson: I met with Steve over Zoom from his home in Hawaii to catch up on what's happened with the Punan Batu since this story aired in 2020,

[00:26:52] Steve Lansing: good things happened for the Punan

[00:26:54] Thanks to this. It's true. Yeah. Good things that happen simply by bringing attention to the Punan Thanks to you. Thanks to Leakey we were able to get some international attention and as a result, Eddie Game, the Head for Science for the Nature Conservancy for Asia Pacific. Eddie became very interested and so thanks to the help of Leakey Foundation, we organized some meetings, right, some

presentations to tell the story.

[00:27:26] Meredith Johnson: We collaborated on a series of Zoom presentations with Steve and Eddie Game and The Nature Conservancy to share the story internationally with donors eager to help. It was also important to raise awareness within Indonesia, so Steve and his Indonesian colleagues worked with a journalist. A science writer named Akhmed Ahreef from Indonesia's Main Newspaper Kompas.

[00:27:48] So Ahreef came several times with us and wrote eloquently about the Punan. And those published in the Kompas newspaper were very influential. And this quickly came to the attention of the. Director General for Forestry and Environment in Jakarta,

[00:28:08] the director general was a key ally. He was in charge of making government recommendations for how forest lands in Borneo should be used.

[00:28:17] He could decide if the land rights should be put up for auction for logging or palm oil plantations, or he could recommend that there was a case to be made that these lands are ancestral lands for people. For the Punan Batu. But that would require evidence exactly the kind of evidence Steve and his colleagues had been collecting.

[00:28:36] One line of evidence was about how the Punan Batu used the forest. Could they prove they were nomadic mobile hunter gatherers? And what exactly was the range of their territory?

[00:28:47] Steve Lansing: We easily persuaded the pun on to wear GPS uh, receivers. On little belts. My wife created some cloth belts that were easy to wear.

[00:28:58] So they go around the forest and they eventually bring them back, change the batteries, and we'd find out are they nomads? This is all published information now. They are, they are indeed nomadic people. Uh, there's no doubt about it. It varies from time to time, but they move roughly four or five kilometers

per week average, constantly moving.

[00:29:20] **Meredith Johnson**: Next, and very importantly, the researchers had to prove that the Punan Batu were truly indigenous people, not descendants of Indonesian farmers who had taken up a hunting and gathering lifestyle.

[00:29:32] Steve Lansing: Are they really original inhabitants? What's this got to do with the genetic history, the population history of Indonesia?

[00:29:37] We had the genetic information showing that they're an isolated population and have been so for a very long time. They're not. Uh, a mere subgroup of the local ordinary people. They are a separate group with long history, a very long history. It goes back at least 7,000 years. How much further than that?

[00:29:57] We don't know, but we know that it goes back a long way. So this gave the director general the information that he needed to say the Punan Batu, the Cave Punan, they are ancestral people and these lands are their lands. These are their ancestral lands. If it's the ancestral home of these people, then it's part of our heritage.

[00:30:15] This is what he needed, right? This is what he needed. Things had changed overnight. All of a sudden the nan were very much in the eye of the, of the government, so to our. Delight and surprise. The government came up with a beautiful map showing their lens and saying, these are the, the lens of the, of the, uh, ku means, uh, traditional community of traditional society, of the pun, batu.

[00:30:41] Meredith Johnson: All of a sudden the pun, batu had a map and the map showed them in their lands, and it showed their lands bordered by logging and palm oil concessions.

[00:30:50] Steve Lansing: So what happens then? There's a lot of land in Borneo and, um, the Nature Conservancy was taking an interest. The Director general was taking an interest.

[00:30:59] We were taking an interest. This is probably not a good place to continue logging. So that happened. That happened. So that's where, that's where we are today. There's no immediate threat of more logging and oil palm development in their lens, but still from that to actually getting their lens. In their name that, that, that's the step we keep hoping that is about to happen, and surely it will so, so grateful to The Leakey Foundation for supporting us.

[00:31:30] Without your support, we probably couldn't have done this research.

[00:31:33] Meredith Johnson: Now the Punan Batu are even closer to full land rights. Just a few days ago, Steve emailed me with the exciting news at the Indonesian Ministry of Forestry is sending a formal verification team to visit the Punan Batu this summer, the final step in validating their claims to their ancestral forest.

[00:31:54] Thank you so much for being part of all of these stories, and thank you for listening, sharing, reviewing, and supporting this show. It's been a joy and an honor to make Origin Stories for the past 10 years. We have so many more stories to explore together and I'm just so grateful. I wanna shout out the many people who've helped make this show

[00:32:14] what it is. Thanks to all our donors and sponsors, thanks to the amazing Origin Stories team Ray Pang and Audrey Quinn, and the many producers and creative contributors to this podcast over the years. Thanks to Sharal Camisa Smith and all of my colleagues at the Leakey Foundation. Thanks to our president, Jeanne Newman.

[00:32:33] Thanks to our Board of Directors and Science Advisors, and thanks to all the researchers who've shared their stories and their work.

[00:32:41] As a storyteller, I appreciate the connecting thread here with our generous 10th anniversary episode sponsor, Don Dana. Thank you, Don, for your

leadership, vision and support.

[00:32:53] You've literally made this show possible and through it you've shared science with millions of listeners around the world. Thank you for everything including sponsoring today's episode. In addition to Don, this episode was made possible thanks to our generous listener supporters, as well as Jeanne Newman, the Ann and Gordon Getty Foundation, and the Joan and Arnold Travis Education Fund.

[00:33:16] We'll be back next month with another new episode. As always, thanks for listening.

Episode 35: From the Archive - Raymond Dart

Link to audio file: https://radiopublic.com/origin-stories-6VPVbG/s1!5d33d

Host:

This is Origin Stories, The Leakey Foundation podcast. I'm Meredith Johnson. Today, we have another installment of our From The Archive series, celebrating The Leakey Foundation's 50th anniversary by sharing never before released lectures from our archive. Since it's Valentine's Day, this episode is a love letter to fossils and the story of one man's fateful encounter with a very special fossil on his best friend's wedding day.

Before we get started though, I want to say thank you to everyone who's donated to our Origin Stories quadruple match fundraising challenge. Your support has been incredible and we're only $310 away from our goal. If you don't know about our quadruple match challenge, here's what it is. Three generous donors are matching all donations to Origin Stories, four to one up to a total of $5,000. Every dollar you give becomes $4 to support this show.

You can learn more at leakeyfoundation.org/originstorieschallenge, and I'll be giving a personal shout out to our most recent donors at the end of this episode. Now, onto today's lecture from the archive. Today, we have Raymond Dart, the man who discovered The Taung Child, the very first early human fossil found in Africa, the fossil that revolutionized our understanding of the human story. It was a discovery that changed Raymond Dart's life forever. You see, Raymond Dart didn't intend to become a paleoanthropologist. He was born in Australia on February 4th, 1893. He studied biology and became a medical doctor specializing in neuroanatomy. When he moved to South Africa in 1922, it wasn't to search for human origins.

Raymond Dart:

I had no wish to be in Africa. I had no wish to be an anthropologist. I wanted to spend my life being a neurologist, learning something about the curious brains that people have and why they act in the strange manners that they do.

Host:

But his mentor persuaded him to go, to help establish the anatomy department at the University of Witwatersrand Medical School in Johannesburg. It was at the time according to Dart the only medical school between Cape Town and Cairo, and so he went. There he became interested in the fossils from the local mines and quarries. He built up a collection of fossil baboons skulls, and he asked his students to let them know if they ever came across anything interesting. Then, one afternoon in 1924, as Dart was dressing for his role as best man in a wedding he was hosting at his house, a student named Josephine Salmons dropped by with two boxes of stones and fossils from a limestone mine outside of village called Taung.

Raymond Dart:

The instrument responsible for the coming of the boxes of stones was in fact, the only woman student in my first science class in anatomy a year after I had arrived in Johannesburg.

Host:

Filled with curiosity, he opened the boxes on the spot. The first one wasn't too interesting, but in the second box...

Raymond Dart:

There was the cast of the interior of a skull. It was about three times the size of a baboon. I knew that it was a strange creature and that it's only possible relatives where the inhabitants of the central tropical forests.

Host:

He dug through the boxes and found a large stone with a depression that fit the fossilized brain cast perfectly. In his autobiography, Adventures With the Missing Link. He wrote, "I stood in the shade holding the brain as greedily as any miser hugs his gold, my mind racing ahead. Here, I was certain was one of the most significant finds ever made in the history of anthropology. Darwin's largely discredited theory that man's early progenitors probably lived in Africa came back to me, was I to be the instrument by which his missing link was found?" These pleasant daydreams he said were interrupted by the bride groom himself tugging at his sleeve. He reluctantly put the boxes away, lock the fossils in his wardrobe, and the wedding went on.

For the next three months, Dart used his wife's knitting needles to patiently chip the matrix of rock from the skull. Then finally, just before Christmas, the rock fell away exposing the skull and face of a tiny three-year-old child. This incredible fossil is now known as the Taung Child. Dart wrote, "I doubt if there was any parent prouder of his offspring than I was of my Taung baby on that Christmas of 1924." The Taung Child was the first fossil evidence we have of our human origins in Africa. He named it Australopithecus africanus, which means the southern ape from Africa. When Dart introduced his Taung Child in a paper in the journal Nature published in 1925, the reception was not good. In his paper, he described a creature with a mix of ape-like and human-like features, but which was more human than it was ape. This was met with skepticism and even outright rejection by the scientific community.

Raymond Dart:

Now, I knew that this would cause a certain amount of misunderstanding that people were bound to want to know why one should arrive, but the idea that here was something intermediate between men and those creatures of the African forest. I was immediately consigned to the lowest depths of hell by certain members of the religious fraternity, and curiously enough, from parts most distant, like Paris and elsewhere, which were unexpected.

Host:

At the time, a time when most of the scientific community was made up of men from Europe and America, people thought Darwin's idea that our origins would likely be found in Africa was wrong.

Joe Rainey Rogers:

People were hoping that one would find the missing link or some evidence of human evolution in places like Europe. There was the Piltdown hoax to push that idea along.

Host:

That's Joe Rainey Rogers. She's a retired anthropology professor who for the past two years has been volunteering at The Leakey Foundation.

Joe Rainey Rogers:

When Dart discovered this small Taung skull, he was presenting evidence that in fact humankind got its start in Africa. It took people a very long time. Some would argue possibly 50 years for people to accept that, "Yes, it really wasn't [inaudible 00:07:46] until..." Well, the Leakey's had their first major discovery in the late 1950s. Then, in the 1970s, there was more in the press. It became acceptable at that point to say, "Yes, Africa has got to be the home of humankind." But before then, no.

Host:

One day when Joe was working on our archive of photos and documents related to our lecture series, she found a brochure for Leakey Foundation Symposium from the 1970s called In Search of Man.

Joe Rainey Rogers:

The day that I came across the program from that symposium, I knew immediately what I had in my hand. I knew that I was holding something that included the reference to this speech by Raymond Dart. It was very exciting.

Host:

Part of the reason it was so exciting was that Joe had attended this talk, the talk you've been hearing clips from while she was a student studying anthropology at UC Berkeley.

Joe Rainey Rogers:

It really had an impact on me as a young college student to hear someone who had done it first, someone who had found something first. I suppose it'd be like meeting one of the astronauts that went to the moon or something, someone really special. He was really a pioneer in this field. I don't know that he meant to be. From listening to him speak, I'm not sure that he ever intended to be in that position, but it happened.

Host:

Dart was such a pioneer that Joe recalls this lecture in the 1970s might have been one of the first time Dart was invited to speak at a public symposium in the United States.

Joe Rainey Rogers:

It was so exciting having heard the stories about the reaction of the scientific community to his research, knowing that he had worked for years and years without much recognition. Here we were in the 1970s and he was coming to San Francisco and he was going to participate in a symposium with other scientists doing research, current research. For me, it was really exciting to go and listen to someone who had been at the beginning of all of this.

Host:

After the discovery of the Taung Child, Dart continued to work and search for more fossil evidence of human evolution in South Africa. Dart, for all the early scorn and criticism he faced, live to see his discovery celebrated and more fossils of Australopithecus Africanus discovered in his lifetime. Not all of his ideas about

human evolution ended up being proven though. In the short talk you'll hear today, Raymond Dart talks a little about his killer ape hypothesis and his idea that early human ancestors had made tools out of bone before they learned to make them out of stone. This idea was never supported by evidence, but it's fascinating to hear him talk about it. Here's Raymond Dart recorded in 1975, giving his Leakey Foundation lecture entitled Why Study Human Origins?

Raymond Dart:

I feel very fortunate to be with you today to open this symposium. I thank Dr. Muller for having proposed the topic of my address. Why study human origins? It was then that I realized some of the simple facts about our symposiums occurring at this particular moment in time, which appeared most propitious. This 1975 year, historically of course, terminates the fourth or final quarter of the 20th century and ashes in the third century of the United States existence, and Happens to be as you have been told the Jubilee year of the public announcement about the discovery of Australopithecus back in 1925.

50 years have passed since Africa's realistic intrusion upon the stage of human origins. Those of you who have read the Sonia Cole's recent book, Leakey's Luck will have realized how the discoveries of [inaudible 00:12:24] to another sites in Tanzania and elsewhere in Kenya, that of the Omo and Awash valets in Ethiopia have expanded that story.

Pithecanthropus had fixed expectations upon Asia as man's birth days. The potential controversy that this South African fossilate was likely to produce despite Charles Darwin's prophetic foresight was obvious, but here are Darwin's remarkable words. It is probable that Africa was formerly inhabited by extinct apes, closely allied to the gorilla and chimpanzee. There's these two species are now man's nearest allies. It is somewhat more probable that out early Pithecanthropus lived on the African continent and elsewhere. Today, Africa has produced and virtually complete series of intermediate forms.

I think that the real answer to why study human origins is the thrill of discovery that everyone knows whenever any of us find something lost or bring slight something, hit the two hidden or clarifies some mystery, we have thrills, small or large. They accompany the revelations, wherever the field, whether physical or mental. Now, when another still like myself studied neurology 60 or even 30 years ago with every known advantage of light and oily merch and lenses, we saw objects magnified, but we were limited to about 3,000 times. Today with electronic microscopy, we can explore structure at the 30,000 or even the 300,000 order of magnification and that each change in the level of magnification, we enter into an entirely different world.

Alan Watts expressed it well in his little book, Psychotherapy East and West. "To the naked eye," he said, "a distant galaxy looks like a solid star and a piece of steel like a continuous and impenetrable mass of matter. But when we change the

level of magnification, the galaxy assumed with a clear structure of a spiral nebula and the peace of steel turns out to be a system of electrical impulses whirling in relatively large spaces."

Simultaneously with these great advances in spatial and molecular knowledge as well as in communication and technocracy, the finding of the Australopithecines times in South Africa defined with incremental precision, the parks that were played by limb uprightness, implements and hunting in achieving human postural evolution.

This ultimate leader [inaudible 00:15:58] in 1953, the anomaly [inaudible 00:16:02] and that's caused the discovery of its being a hoax. But then, human evolution [inaudible 00:16:12] them and its vast antiquity became established as realities. Firstly, through these African fossil man like apes. Secondly, through the discovery of radiocarbon dating in 1947 and the potassium-argon in 1958. These facts made the acceptance of Zinjanthropus in 1959 worldwide in Darwin's centenary year and geological, paleontological and geo morphological studies in Africa since then have been providing thrilling discoveries along the way.

Sonia Cole's book shows the immense pop with the lives of Dr. Louis Leakey and Mary, and now their son, Richard and his wife, Meave have played in concentrating universal attention upon human origins. You can learn far more of value from her book than listening to her recital for me. I'll [inaudible 00:17:28] whatever remarks I make this morning to appeal of the facts recently discovered in Africa and with implications upon the human story that have interested me, and I hope will interest you.

I have emphasized man surge to eradicate living creatures, but men did not initiate the hunting process. It originated in the fishy stage of evolving [inaudible 00:18:02] and it's also shared by our living primate relatives, the chimpanzee and the baboons as Dr. Goodall and others have shown. Dr. [Iza Kaleakey 00:18:15] of Japan has recently proven this most empathically. He has collected no less than 364 cases of their predation recorded in recent years in Sub-Saharan Africa. They involve 22 different species of mammalian prey, and also at least 10 separate baboon and chimpanzee populations between Ethiopia and the South Africa. Meat-eating is closely correlated with advancing primate progression.

Kaleakey's mathematics are also vital because the results of baboon and chimpanzee predation on the one side contrast radically with those of Australopithecines and early mankind on the other side. The difference which he has reported, but upon which he has not yet commented is simply that the baboons and chimpanzees leave behind no evidence whatsoever.

They consume their prey completely skin, bones, and all. Australopithecines on the other hand were sufficiently man like in their habit of cutting away skeletal parts with a meat [inaudible 00:19:49] that have attached that to, to consume at their leisure and to share it with their mates. Apparently, it was eaten and favored at sites in the open or in sheltered nukes conducive to their own safety and also

where sticks and stones were available to fracture the uneaten skeletal parts and extract the metal and the blade. The jaws of animals form natural scraping tools and long bones can be used to give blows while they are still fresh, but the passage of time is an essential factor in hardening the outer layer of compact bones sufficiently to produce tough and knife edge blades and such season bones when cracked by blow from a stone or another bone are easily twisted apart.

The two resultant curved in produce a wide variety of sharp pissy cutting tools. The failure to consume all this indolent human habit of accumulating a bone heap in the vicinity of their habitation sites had a second vital result. It inevitably familiarized developing Australopithecines with environmental toys from babyhood onwards during infantiles and adolescent growth.

Bones, teeth and horns, that's created automatically in environment where familiarity with the very objects wanted to attain the differential knowledge and the expertise in handling to making material such as hunting needed was inevitable. Thirdly, the bone heat and its association with killing and the death prey gave tangible and repetitive evidence of potential personal mortality. Thus, the hunting habit must have played a material, if not, major part to awaken and consolidate human fears about the phenomenon of death and the consciousness that evoked their burial customs and their religious ideas. The stimulant effect of red colored [inaudible 00:22:37] upon each of us betrays the basic part that blood sacrifice and death and how the ideas about them have occupied and still retain pound for pound attention in ritual and religion.

You were all familiar with the worldwide use of red ochre in rituals, in barriers, and in early mural up. The symbolism of life and living is implicit in the very name hematite, that is bloodstone given to this red stone. I'm now calling these facts today only to explain the passation that we have experienced in South Africa during the last decade through ascertaining that antiquity and its phenomenal dispersal. It used to be thought that mining was a neolithic discovery, shortly preceding better metallurgic just five or 6,000 years ago. We have been learning that mining like hunting has an unexpectedly ancient prehistory. First of all, we traced the antiquity of mining right over in Swaziland that it will bring them about 100 miles square between the [inaudible 00:24:06]. There, seven years of archeology and radiocarbon dating proved between 1965 and 1972.

Then, it went back at the [Inguénia 00:24:23] iron mine to the 44th millennium before the present. Bloodstone was being mined in South Africa while the [inaudible 00:24:37] man was inhabiting Europe. It's been mined there ever since for personal use in African rituals, in Kenya, in Rhodesia and in South Africa down to the present day. But last year, we learned that the astonishing Inguénia radiocarbon data for red ochre mining was 4,000 years less than the 48,000 years. Dating that we found last year for the latest middle stone age iron ochre products of the same sort found in Border Cave.

That cave looks westward over Swaziland from [Sunderland 00:25:28], about 100 miles east from the Inguénia mine. That date of almost 50,000 years came from a thin stratum, a meter below the cave's floor surface. Now, middle stone age, baby burial was found and [inaudible 00:25:52] man investigated by Dr. Lawrence Wells. They also came from Border Cave in 1940, a generation ago, but two more meters of consolidated middle stone age deposits containing further skeletal remains and similar red pencils occur right down to bedrock.

The age of the process of mining is near to 150,000 years before the present. The ochre mining in South Africa is apparently three times more ancient than radiocarbon could prove. Meanwhile, Dr. [Ori Delumley 00:26:44] and his associates in Southern France have also found similar red ochre pencils in [inaudible 00:26:53] at the [Tera Amarta 00:26:55] beach side. That is a bazillion age. It must be twice as old as Border Cave, but it's been estimated as co-evil with the Acheulean, Ambrona, Torralba, Homo erectus site in Spain. That site excavated by Professor Clark Howell has been assessed to be 300,000 years old. The reason is why we must study human origins everywhere from southern most Africa to Europe, and even America were universal. They evoke mining in the earliest Australian oceanic miners, [inaudible 00:27:46] that went there 30,000 years ago and those of America at some later date.

Today, it's a matter of how long we as mining people will survive and under what conditions? They are the problems which humanity in general will face... Will lead nearly. The entire world has been [inaudible 00:28:11]. We're stepping out into space with our feet while scratching the bottom of the ocean with our hands. In some respects, as with the scanning electronic microscopy, we seem to be only at the beginning of knowledge and understanding. As Titanic technical at least gradually drain the periphery of our continental globe, but it's mostly the millennial store houses of coal, gas and oil energy, but provided the world profits adequately during the next 50 years, and the knowledge gained from the last 50 years and the condition, the splendid symposium, which is being formally opened here today, the third millennium should be assisted in answering these issues for mankind constructively and thus, we hope effectively.

Host:

Thank you so much for listening. We'll be back on March 14th with another talk from The Leakey Foundation Archive. Thanks to Joe Rogers for sharing her memories of Raymond Dart and for all her help with the archive. As I mentioned at the top of the show, our quadruple match fundraiser is still happening and I want to personally thank Marco [Blau 00:29:50], Keith Mac, and two anonymous donors for their support. I really appreciate it.

If you want to join them and support the show, please consider making a donation to The Leakey Foundation today. Three anonymous sponsors are offering a quadruple matching challenge just for Origin Stories' listeners. Thanks to these

sponsors. Your donation will be matched four to one. Your $5 will become $20. Your $10 will become $40. If you gave $50, it would become $200 to help us produce more Origin Stories episodes. Go to leakeyfoundation.org/originstorieschallenge to make a donation today. It'll really help us and we appreciate it so much. The link is in your show notes.

Origin Stories is a project of The Leakey Foundation, a nonprofit organization that funds human origins research and shares discoveries. This year, The Leakey Foundation is celebrating 50 years of exploration, discovery and sharing our human story. Learn more and sign up for our monthly newsletter at leakeyfoundation.org. The season of Origin Stories was made possible by support from Dixon Long, Camilla Smith, Jeanne Newman and donors like you. This episode was produced by me, Meredith Johnson. It was mixed by Katie McMurran. Our theme music is by Henry Nagel. Thanks for listening. (silence)