

"In Search of Human Origins Part Three"

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Tonight on NOVA, the story of our human origins unfolds. What was it that made us modern humans? Was it anatomy, or tools, or art that finally made the difference? Anthropologist Don Johanson and his team piece together the puzzle. The conclusion of "In Search of Human Origins."

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DON JOHANSON: A million and a half years ago, a strangely human creature appeared. These creatures lived in family groups. They used fire for warmth and protection. This was Homo erectus, a human ancestor who set the stage for the appearance of ourselves, Homo sapiens. With the control of fire, these ancestors became a people on the move. Over hundreds of thousands of years, they spread throughout the African continent. Eventually, they moved out of Africa into southern Asia, and finally into Europe. Even with fire, they were confined to warmer regions and to the same meager existence. For over a million years, life remained unchanged for these people. They made the same stone tools and had the same ways of finding food. How did we get from these primitive ancestors to modern humans and our modern way of life? My name is Don Johanson. I'm a fossil-hunter who's long been fascinated by the question of our origins. Today, we cover the entire globe, and we've altered the world around us with our vast numbers and our modern way of life. Depending on where we come from, we appear very different on the surface. But beneath our skin, we are all one species, Homo sapiens. Blood proteins and DNA reveal an incredible similarity among people from every part of the world, but our species is not defined by biology alone. The lives of people everywhere are shaped by culture, technology, religion, art, and language. So, how did we become modern people, Homo sapiens? The answer to that question isn't so easy, because it's not just about what our ancestors looked like. Much more importantly, it's about how they behaved. And while the hard evidence—the fossils, the stone tools—is fascinating, it's also highly provocative, and it seems that the more close in time we come to ourselves, the less agreement we see between scientists as to how and when our ancestors became modern. This is Klasies River Mouth, on the southern tip of Africa. Around 100,000 years ago, modern people, Homo sapiens, appeared here. I decided to visit the site to see for myself. A team of archaeologists excavated this cave for many years and finally uncovered some fascinating remains. One fossil in particular caught my attention. This lower jaw was found right here at Klasies River Mouth. It's thought to be about 100,000 years old, and what's so remarkable about it is that the anatomy is essentially like our own jaws. It's very lightly-built, it

has small teeth, and most importantly, it has this projection, a chin, much like we see in our own jaws. And it's evidence like this that tells us that ancestors, essentially identical to ourselves, lived in this very cave. And they didn't just look like us. They were beginning to behave in familiar ways, as well. What really strikes me about this site is its perfect position. You can really understand why our ancestors chose this particular place. The cave faces east, so they would have woken up to the sun. And when the tide is out, a whole series of rocks are exposed, where our ancestors could go and collect shellfish, much as people do today. Because the people who lived along this coastline are the earliest known Homo sapiens, some scientists are convinced that Africa was the birthplace for all modern humans. That's what Chris Stringer, at the Natural History Museum in London, believes.

CHRIS STRINGER: If we look at the fossil record, Africa is the place which has the oldest modern humans, and so Africa, I think, is our original homeland, and within the last 100,000 years, from that homeland, our ancestors dispersed across the world, replacing archaic people, and gave rise to the people we find everywhere today.

DON JOHANSON: Did modern people move out of Africa from places like Klasies River Mouth and replace the archaic descendants of Homo erectus everywhere else in the world? It's known as the "Out of Africa" theory. But there are critics of this theory, and one of them supports an opposing view with evidence from a remote part of Australia. Alan Thorne believes that Homo sapiens evolved from Homo erectus ancestors locally, wherever they had spread throughout the Old World.

ALAN THORNE: Well, I think we all agree that there's an Out of Africa, but I feel strongly that that Out of Africa has to be at least a million years ago. So, you know, since that time, over the last million years, with people in Africa and Asia, Europe, southeast Asia, various populations are making their own adaptations to different environments and landscapes, but all as part of the same expanding and evolving species.

DON JOHANSON: This fossil is the starting point, a million-and-a-half-year-old skull from Africa. These Homo erectus ancestors moved out of Africa. Their remains have been found through Europe and Asia. This is another Homo erectus, Java man, from Indonesia. They moved north into China. This skull, Peking man, brings us closer in time to ourselves. Were all these Homo erectus ancestors replaced by Homo sapiens coming out of Africa? Or did they themselves evolve into modern people? For many years, the vast Australian continent was seen as a backwater. This is Mungo, in the southwest outback. This stark landscape was once a rich lake where early Homo sapiens lived. Their remains continue to erode out of this land, with new fossils turning up every field season. But where did the modern people who settled here come from? Were they part of a new migration of Homo sapiens out of Africa, or did they evolve in this part of the world from Homo erectus? To find out, Alan Thorne traveled to nearby regions of Asia, looking for the ancestral populations of the fossils from Australia. He thinks he's found a sequence of skulls stretching back to the time of Homo erectus that prove Homo sapiens evolved locally, not just in Africa. So, when you step back and you look at the origins and evolution of modern humans, of what we call Homo sapiens, you look at it in a much broader perspective. You see it happening in Europe, in Asia, in Africa, all more or less at the same time.

ALAN THORNE: Yes. We start off in Java and Indonesia a million years ago, and then the first of the Australian individuals like this one from this region, which shows very clear links to island Indonesia, and then straight on with the same brow ridges, the same foreheads, the same faces, evolving in a modern direction.

DON JOHANSON: Evolving to this Homo sapiens. Thorne finds the same line of evidence from erectus in China a million years ago, leading all the way to sapiens in Australia, like these modern skulls from Mungo.

ALAN THORNE: So, for me, it's, of course, it's all one evolving species. But certainly, this modernity that we see in southeast Asia and Australia is traceable back in this area a million years.

DON JOHANSON: So, in this part of the world, it could be that Homo erectus was not replaced, but evolved here into Homo sapiens. But in Europe, it's much harder to make the link between modern people and Homo erectus. What happened to Homo erectus here? These ancestors pushed into places very different from the African savannah. They were armed with simple tools, and I'll be their ability to use fire is what brought them the most comfort, especially on a day like this. But what happened to them? Did they all survive? Well, we know that those that made it into Europe became almost human. We know them as Neanderthals, and the fate of those Neanderthals is one of the great unsolved mysteries. Many of the clues to that mystery can be found in France. Scientists have been exploring caves here for over a century. Nonetheless, Europe has given us no clear answers, just an enigma, the Neanderthals. These paintings are by Czech artist Zdenek Burian. Neanderthal fossils were first uncovered in the last century, but many scientists thought these creatures too repulsive-looking to be our ancestors. Burian saw them as brutish but sympathetic people, struggling to survive in a difficult world. And, in fact, the world they lived in may be the key to their unusual appearance. Andre Debenath has spent a lifetime exploring the caves and valleys of the Neanderthals. He has come to respect the remarkable ability to survive. This cave, in southwest France, is called LaChaise. So, Andre, do you think the landscape out here that we see today is at all similar to what it was, say, 150,000 years ago?

ANDRE DEBENATH: No, not exactly, because the river was larger and the cavern was lower, and it was a very cold climate, so there were just short grasses and very few trees and reindeer.

DON JOHANSON: At times, it was bitterly cold. While the Neanderthals lived here, Europe was gripped by ice ages, giving way occasionally to warmer spells. But even in the long winters, there was enough to eat because of the vast herds of animals that thrived in these colder regions, like musk oxen and reindeer. Animal hides must have protected the Neanderthals from the elements. Even so, it was surely a difficult existence, and it was one that was lived at least partly indoors, in the many cave shelters and rock overhangs that are found in these parts. So, during times of really intense cold, a cave like this provided an incredibly important place for protection.

ANDRE DEBENATH: Yes. It was a very good shelter against rain, against cold, against animals and so on.

DON JOHANSON: In this labyrinth, Debenath has found discarded bones of musk oxen and reindeer, bearing testament to a Neanderthal diet heavy on meat. Debenath dug down through many layers of remains, proving that the Neanderthals hung on for an astounding length of time. Now these, the deposits that have been excavated in here suggest to you that there was at least 200,000 years of occupation.

ANDRE DEBENATH: Oh, yes, probably. Yes.

DON JOHANSON: To put that 200,000 years in perspective, we've only inhabited our modern cities for 200 years, a thousandth of that time. Imagine coping with these extreme conditions. What sort of people were those Neanderthals? Their long stay in Ice Age Europe had shaped them in unusual ways. They were so well-adapted to the cold that their bodies had evolved into forms that conserve heat: short and stocky. Unlike any people that came before them, the Neanderthals buried their dead. This powerfully spiritual act shows how far they had come from Homo erectus, for whom there is no evidence of burials. But are the Neanderthals our ancestors, our link to the past, or are they an evolutionary dead end? Their place in our lineage is the subject of intense debate.

CHRIS STRINGER: The Neanderthals had a long and successful evolutionary history. They evolved and survived in Europe over a period of at least 200,000 years. But in that time, they also developed their own special features, and these occur through the skeleton, but in particular, they concentrated in the face. The face is dominated by the nose, a very large and projecting nose, and the whole middle of the face is poured forwards, taking with it the teeth, as well. And for me, this, in particular, marks them off as something different, probably a different species from us. And this is difficult to grasp, in a sense, because we're saying that they were human beings; there's no doubt about that. And yet, they were different kinds of human beings, different from us, not part of our lineage, not our ancestors.

DON JOHANSON: The argument that the Neanderthal skull looks distinct enough to be a different species is persuasive. But other scientists, like Alan Thorne, disagree.

ALAN THORNE: When we look at the bones of Neanderthals and other peoples, it's easy to see the differences. But as living people with flesh on those bones, those differences would have been much less significant or noticeable. I mean, today, there are people of extraordinarily different physical characteristics: different skin colors, different face and eye shape, different hair forms, who meet, marry, and have children. When I look at Europeans, I see the evidence of that mixed Neanderthal parentage. So, Neanderthals must be part of our species. They must be part of us.

DON JOHANSON: Chris Stringer and Alan Thorne are protagonists in this fierce scientific dispute, but they're hardly along. The argument over where modern people come from is waged around the world at meeting after meeting after meeting. The debate has divided the scientific community. Usually, the evidence is discussed with decorum, but tempers sometimes boil over. The implications of both sides are profound. If one group prevails, it means that less than 100,000 years ago, an entire offshoot of the human lineage, the Neanderthals, became extinct. If

the other side is right, then somehow, we, modern humans, carry the genes of these strange Neanderthal people.

ANTHROPOLOGIST: What would you see then, as the role of Neanderthals in Europe now, in this whole process? Do they contribute at all? Are they completely off on the side?

CHRIS STRINGER: The early moderns in Europe are very distinct, about as distinct as they could be, in terms of body proportions, from the Neanderthals. And then there is a shift over the next 20,000 years to a body shape that is characteristic of recent Europeans. That, to me—

ANTHROPOLOGIST: That's true, but you—

CHRIS STRINGER: It's very difficult to explain that it's a Neanderthal contribution that made our—

ANTHROPOLOGIST: You really don't have any distinct evidence of body shape in the earliest modern Europeans.

CHRIS STRINGER: I think that's a separate question.

ANTHROPOLOGIST: Well, no.

DON JOHANSON: Perhaps the real question, as the human lineage becomes more modern, is less one of anatomy than of culture. With intelligence, behavior takes over as the key to our survival. This skull from the Middle East is the earliest complete Homo sapiens. It has the same large brain, flat face, and high forehead as ourselves. But, did this person behave any differently from a Neanderthal? Their anatomy won't tell us that. This narrow strip of land between the Mediterranean and the Sea of Galilee may be the single best place to look for differences in behavior. Homo sapiens moving out of Africa from places like Klasies River Mouth, would have passed through the Middle East, and during the coldest periods of the Ice Age, the Neanderthals from Europe also moved here into caves like Amud. That makes this a good place to compare how these two distinct populations lived. So, this is—Well, it's how many years now since you've worked at Hayonim?

OFER BAR-YOSEF: It's about 21 years since we last excavated here.

DON JOHANSON: Archaeologist Ofer Bar-Yosef has excavated many cave sites in the Middle East, both Neanderthal and Homo sapiens. So, in addition to cleaning out the cave, you also found artifacts and anything else in the excavation?

OFER BAR-YOSEF: We did find a couple of human finger bones.

DON JOHANSON: One such cave, called Hayonim, was home to Homo sapiens nearly 90,000 years ago. Why look here in the Middle East?

OFER BAR-YOSEF: Well, I believe the Middle East was and still is a kind of a central bus station. People are coming and—

DON JOHANSON: A central bus station.

OFER BAR-YOSEF: A central bus station. People are coming in from different places, whether Africa, east Asia, or Europe. They come here depending on the circumstances. People came out from Europe because in the harsh climatic conditions of glacial periods, they were looking for refuge and for a shelter from the bad conditions in a place which always enjoyed good climate. People are coming of Africa is because the constant—There was a constant movement since the early days of our ancestors, of people coming out of Africa, probably looking for some new territories, some new homelands.

DON JOHANSON: Bar-Yosef's team is digging up clues to their daily existence in this new homeland. But behavior is hard to reconstruct. It relies on tiny clues left behind, like bones and tools and pollen, and seeds from the vegetation the inhabitants of this cave gathered. Everyone works methodically to make sure nothing is missed. Every find, like this delicate cutting blade, helps build up a picture of daily life. These Israeli cave sites offer the first tantalizing evidence that the two groups had distinct approaches to life. Though the differences are subtle, perhaps what we're seeing is the beginning of the modern quest to explore and understand the world.

OFER BAR-YOSEF: Early Homo sapiens, these guys were much more mobile over the entire surface of the Near East. They were going from one place to another. Sometimes, they perhaps even went to the deserts to spend some time. So, their knowledge of geography, their knowledge of their environment, was much better and more elaborated than that of the Neanderthals. Neanderthals were different. They were hanging, more or less, only around in their own cave, or around the cave, getting the raw material for making stone tools, hunting, plant collecting, and so on. They were much more local, stationary guys. Any time they needed a mate, they probably went to the next-door cave.

DON JOHANSON: So, between 60,000 and 90,000 years ago in these valleys, two cultures began to diverge. We may never know if Neanderthals and modern-looking peoples ever met here in the Middle East. Even though their cave sites are situated side by side, they're separated by tens of thousands of years of time. But, what would have happened had these two very different populations, perhaps different species, actually met face to face? That finally happened here, in France, where the Neanderthals had reigned unchallenged for hundreds of thousands of years. Some 35,000 years ago, during a brief respite in the Ice Ages, modern-looking people began to move into Europe. Their remains were first found here, during the construction of a railway line which now passes the Cro-Magnon Hotel, the local name for these early Europeans. Jean-Philippe Rigaud, a leading French archaeologist, is intrigued by the mystery of what happened when Neanderthals met Homo sapiens.

JEAN-PHILIPPE RIGAUD: Well, they were probably and suddenly in competition for their territories, exploitation of the environment, and so on. But, we don't know exactly how it happened exactly, if it is something which had been violent or some kind of assimilation. We don't know.

DON JOHANSON: So, between these two populations, there must have been tremendous competition for natural resources, I imagine.

JEAN-PHILIPPE RIGAUD: Yeah. The competition was pretty hard, because of the territory, because of the food, because of the shelters they have been using. All kind of competition in all kind of different domains.

DON JOHANSON: Imagine being a Neanderthal living in this very rock shelter. Suddenly, a new kind of people invade the land. They look different, so different, they might even be a separate species, incapable of mating and having children with you. And these new people were vying for valuable cave sites, hunting the same animals, using up flint for stone tools. There must have been an unmistakable and frightening change in the Neanderthal's world.

CHRIS STRINGER: If we look at Europe between 30,000 and 40,000 years ago, I think we see evidence of an economic competition, a competition for the resources, between Neanderthals and early modern humans. The Neanderthals had been long established there, but suddenly, there was another kind of human there competing for the same resources, one which probably had an edge—maybe only a small edge—in terms of economic survival and economic abilities to exploit the resources better than the Neanderthals could do.

DON JOHANSON: In the little town of Foix, we can find an example of such an economic edge. The chateau is built on a hilltop where early modern humans also chose to live. The site has a strategic view of the valley. Archaeologist Paul Bahn spent years tramping across southwest France to search for exactly these kinds of subtle advantages. He's discovered a revealing pattern. Nearly all the Homo sapien sites are located up on hilltops.

PAUL BAHN: And the people living up on high ridges like this one, they would have had an enormous advantage in being able to survey vast areas of land from this spot, where you can see so far to the north and south. This would have given them great advantages in being able to plan their hunting strategies, being able to see the herd movements, and plan well in advance what they could do about it. The Neanderthals, on the other hand, almost never occupied positions like this.

DON JOHANSON: Neanderthals lived down below in the valleys, where they had no advance warning of the arrival of herds to plan their hunt. Homo sapiens living here, with a view of the river where animals cross, were in a much better position. With the arrival of modern humans in Europe, we begin to see evidence of competition, and over a period of roughly 5,000 to perhaps 10,000 years, the Neanderthals were gradually displaced into less desirable areas, like the British Isles, northern Germany, and southern Spain. And there, they hung on until about 30,000 years ago, when they met their real extinction, the end of a long and quite successful evolutionary lineage. It's clear that the Neanderthals disappeared as a distinct group, but whether they interbred with Homo sapiens, leaving some of their blood in us, is still an unanswered question. What we do know is that with the arrival of modern people in Europe, the way of life began to change dramatically. Homo sapiens brought with them a new kind of hunting technology. They invented dozens of different types of tools. Glue and a bit of animal hide were used to bind this spearhead to a wooden shaft. It was a deadly and effective hunting weapon. Their innovations

went beyond the practical concerns of daily life. The secluded river valleys of southern France reveal a people moving beyond the dull, survival-oriented world of their ancestors and celebrating their existence in new and exciting ways. In the Vesere river valley, there are numerous rock overhangs, which not only provided shelter for humans who were living here, but also sometimes ideal places to produce art, art like this magnificent frieze of a cavalcade of horses, almost a public monument that people could see daily as they moved about in this area, and perhaps served as a landmark to the landscape in which they lived. A creative revolution was in the making. There's been much speculation about why these horses were carved, and what they meant to these early people. But even the work of living artists can be difficult to interpret, so instead of studying the precise meaning, a new breed of archaeologist has gone back to basics, working out the practical details of how some of the art was created many thousands of years ago. Michel Lorblanchet and his assistant selected a cave in southwest France to carry out their experiment. It's not far from the famous cave of Lascaux, which is covered with these haunting and beautiful images created 17,000 years ago. Cave explorers have been finding paintings like this since the end of the last century. At first, no one believed that such refinement and color and technique could be the work of prehistoric people. But, using only the tools and pigments available at that time, Lorblanchet has recreated the creative process step by step. The remains of pigments, charcoal, and ochre have been found in many of the painted caves, and rough outlines and charcoal are still just barely discernible under some of the paintings at Lascaux. Through experimentation, Lorblanchet has discovered that the best binder for the pigments is human saliva. In his mouth, the charcoal goes through one last grinding process to make sure it adheres well to the uneven wall of the cave. The human mouth, rather than a paintbrush, is the most effective way to apply the paint evenly. Lorblanchet works by the same dim light used by those ancient artists. Just a few drops of grease in this simple stone lamp keeps the flame burning for an hour. Lorblanchet learned this technique from Australian aboriginal painters.

MICHEL LORBLANCHET: The breath is probably, I think, the most important part of a human being, and the artist, by spitting the paint, is projecting himself onto the rock surface, and doing this action, he became the horse. He was transformed into the horse.

DON JOHANSON: Bone also served as a canvas for fine engravings, like this delicate horse. This carved salmon is just one of thousands of pieces that come from a single cave alone, a sort of art factory of the western world. The Count Begouen's chateau sits above the cave, so he is the lucky keeper of this art. But nearly every hamlet in this part of France boasts an example of magnificent prehistoric art, often only recently discovered. Madame Coulier gives me directions before I set off for a distant corner of her farm. The entrance is a medieval pigeon loft. For many years, the farmers used the front part of his cave for storage. It wasn't until cave explorers ventured deeper inside that carvings were discovered on the walls. In some places, a clever Ice Age artist elaborated on the natural shape of the wall, using just a carefully-placed eye to create the illusion of a horse's head. At other times, they carved right into the wall surface, like this woolly mammoth, a creature that wandered these French valleys 20,000 years ago. The wealth of art found here has created the impression that Europe was the finishing school for modern humanity. As the final part of this experiment, Lorblanchet makes a handprint, the artist's signature found in many sites across Europe, but not only in Europe. Thousands of miles away, a similar revolution in behavior was taking place. At a place called Allen's Cave, in Australia, a team has come up with astonishing evidence that modern people arrived here much earlier than

anyone thought possible. Every summer, a dedicated excavation team makes the trip to this remote area, miles from any town. Archaeologist Rhys Jones believes the new Australian evidence will undermine the old view that Europe was where modern culture began. This black strip is the remains of a hearth that people once sat around, and his team has painstakingly removed hundreds of ancient stone tools. But when did this happen? The sand itself can provide the answer. These samples are shipped to laser labs to be dated, allowing scientists to put a precise time on the appearance of people in Australia.

RHYS JONES: Now we have dates in Australia going back to between 50,000 and 60,000 years, and we are able to try and look at this phenomenon in a global perspective. And we see, for example, that there is water between Australia and Asia, and these water barriers managed to stop the entire Asian-African fauna. Nothing crossed them for millions of years. And then, suddenly, this new animal, modern sapiens, with a new technology, which is watercraft, manages to cross these water barriers, 100 kilometers of ocean, and then claim an additional ten million square kilometers of new land.

DON JOHANSON: The voyagers from Asia who came ashore here couldn't have done so unless they were modern, and must have brought with them an exceptional perception of the world in order to survive. When people arrived in Australia, they were already fully modern Homo sapiens. In fact, the colonization of Australia is a powerful illustration of what it means to really be human. Not only was the sea voyage a major feat in itself, but their very survival in this continent was a major event in the human career, a true test of their abilities. By the time they got to the southern coastline, it must have seemed like the very end of the world. It was also the limit of human adaptability, where the relationship of people to the land is tested, and was certainly tested 50,000 years ago. Even with 20th century technology, many settlers who tried to live here failed. Farms dried up for lack of water, and drillers abandoned their mines. Except for the odd rabbit hunter, they've come and gone. Out here, the material culture of our own time falls short. Picture the difficulties the first Australians must have faced on the Nullabor Plain.

RHYS JONES: And I think that the whole problem is exemplified by this plain. It's flat. It has almost no features. It's a desert. It's on limestone, so any water that gets in there percolates down. It could be a killing field for anybody who doesn't know how to cross it and how to live in it. Now, how do you live in a place like this?

DON JOHANSON: On this killing field, the modern ability to communicate through language and secret, well-guarded landmarks meant the difference between life and death. Even though it appears to be featureless out here, there are specific spots that are very distinctive where you might find water, aren't there, Maurice?

MAURICE MILLER: Yes, Don. Just looking at the arrangements of rock tells you that it was put there by a human hand, and it gives you an indication that that's where water is. And like what you see here now, tells you that there's water here. Or tells me that there's water in here, and normally it's covered up by this rock. So, when you lift the rock up, there's water.

DON JOHANSON: An Australian aboriginal guide, Maurice Miller, astonished me by walking directly to this water hole, and he knew that the next one was a half day's walk away. It was this

intimate knowledge of a hostile terrain that allowed his ancestors to survive here. And although it looks desolate on the surface, tens of thousands of years ago, there was a thriving industry just below ground, more evidence of fully modern humans at work. I'm now some three hundred feet below the windy and treeless plain known as the Nullabor. We know that here, in what is now southern Australia, early modern humans had to venture into a cave like this in order to retrieve a very valuable natural resource: flint. It was highly treasured and probably traded hundreds of miles to the north, where we find stone tools and weapons fashioned from this very kind of rock. A quarter mile deeper into the cave, well beyond the reach of the sun's light, lies an even greater mystery. The trip down here is harrowing, but well worthwhile. The cavern walls are covered with white, chalky limestone. Over 20,000 years ago, people struggled down here to create these mysterious symbols. Their meaning is lost to us, but the human urge for expression is clearly recognizable. What's really impressive about being in the inner part of this cave, really, is that virtually everywhere you look, everywhere you look, on the walls, the ceilings, wherever humans could reach, there are impressions, there are engravings, there are finger marks. And some of these are so unmistakably made by a human hand. If you look up at some of these, you see a human hand fits right into them. When you see something like this, which has clearly been made with some intention, even though we may never know exactly what they meant when they were doing this, it signifies that the people who were here were really us. These were humans. This is Kakadu, on the northwest coast of Australia, where some of the most spectacular examples of this early creative explosion can be found. The area has been home to people for tens of thousands of years, a continuous occupation. Today, their clan is called the Gagudju. Bill Neidje is an elder of the Gagudju and a rock artist himself. His job is to take care of hundreds of paintings which cover the rock surfaces. Some were painted recently by Bill and other modern Gagudju artists, but there are also ancient paintings of creator beings, the heart of the clan's tradition. Bill knows an origin story of a creator who walked across Australia, making the land, the plants, and the animals. Perhaps this universal urge to tell stories was born with the first modern people.

BILL NEIDJE: Indjuwandyjuwa, he came here, and then he do this. He looked back. He sees. He created this world like it was a world, a country. Everything he created himself. He crawled over that rock over there and he come in for a drink of water. And that old man, he's stuck in the water. He couldn't make it, going by that cave there, by this cave over there. He stayed there. He said, "Well, people didn't see me. I'm stuck in the mud." So he stayed there. And he picked up that mud, wet, and he made one man like man, and a woman. And he said, "All right, you two. Women are to make them, making more people to fill this country." He said, "Aborigine, our people, can eat the yam, nuts of the plain, all the fruit, turtle, fish, catfish, lily, red lily." And he added good taste. "I'll leave it for people." I'm telling you this story how the generations been started, and you've got to keep the generations going. Other places, other worlds, other religions, should be taught the same way, the way it was before us.

DON JOHANSON: "The way it was before us." All societies like to tell stories of how they came to be. The story I've told here is grounded in science. There are still many discoveries to be made, and certainly many of the pieces of the puzzle are still missing. But we can be certain that we are united by our past, that all of us have a common origin. The beautiful artwork, the paintings we've seen in Australia, are a testament to an incredible cultural explosion that occurred some 40,000, maybe 50,000 years ago. And it didn't happen just here. It also occurred

in Europe and in Africa. In fact, everywhere that humans went. Although our anatomy may have set the stage for becoming modern, it's culture that makes us human, that sets us apart from the ancestors that came before. All of us are linked by culture: art, language, religion, and technology. But our modern capacity for culture has outpaced our biological evolution. This is the latest chapter in the human story, a chapter that continues to unfold.

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