Religious perspectives on the science of human origins – introduction

This video was recorded at the Smithsonian’s National Museum of Natural History on March 21, 2010

Dr. Rick Potts: At 12:00 noon, March 17, 2010, this past Wednesday, Dr. Cristian Samper, the director of our museum, officially opened the Human Origins Hall to the public. He emphasized in his remarks that this exhibition is one of the most significant achievements of our museum in its mission of understanding the natural world and our place in it. (00:45) The exhibition I consider as the person who helped put the vision and the team together for it, I consider it the centerpiece of the Human Origins Initiative. Certainly its public presence. The Human Origins Initiative is dedicated to the highest quality scientific research. We have field sites and excavations going on in Kenya and Tanzania, China, Indonesia, a variety of parts of the world with the terrific research partners, international partners in those countries. But we're dedicated to more than that. We're also dedicated to making the findings in this field accessible to everyone through the exhibition, its public events and a wide variety of learning opportunities. (01:40) 100 years ago, the fossil record pertinent to human evolution consisted of a few dozen fossils, mainly of the species known as the Neanderthals. Today, there are more than 6,000 fossil individuals, ranging from individual teeth to nearly complete skeletons, spread out over the past 6 million years of earth history that informed this subject. And these fossils along with hundreds of thousands of archeological finds, record a remarkable record and still rapidly growing record of the accumulation of features that together distinguish the human species from all their forms of life on earth. (02:39) The investigation of human evolution is one of the most vibrant fields of science. And here we're seeing a small part of the Smithsonian collections when a few of my friends went in there and cleaned off my bookshelves and filled them with specimens. But there's a very small part of the Smithsonian collections that of course includes original
artifacts and fossils, as well as exact replicas of fragile and rare specimens that are of course, protected in the countries where those were found. And we have used those as well as the contributions from 48 countries in building this exhibition and providing a public space where everyone can see the array of discoveries, find out about the research, learn how scientists find out about these things and understand why there are scientific debates. (03:41) Now, the exhibition theme is the question: what does it mean to be human? And this is one of the most profound questions that one can ask. A question formed by many different endeavors; by religion, philosophy, the arts, the sciences, by everyday experiences. And this question is at the heart of human curiosity, especially pertinent to who we are as a species. How did we get here? What is our relationship to the world around us? And even, where are we going? (04:25) This is a view of the central part of the exhibition space. And this is the only place where we actually engage the visitors and the question, what does it mean to be a human? And it is there that we ask them, the visitors, you all, for your personal ideas and thoughts on the matter. And so the exhibition intentionally seeks to place the scientific discoveries on human origins, which have been developed through the study of evolution, in a way that encourages our visitors to enjoy and to examine the discoveries in relation to their personal, to our personal and societal understandings of what it means to be human. (05:16) The exhibition specifically explores who we are as a species by inviting all people who come in through our doors and also do go to our website, to see and learn about the finds that speak to the emergence of homosapiens. The Human Origins Hall considers human beings in the most comprehensive manner, and in the greatest time depth of any Smithsonian exhibition, and it invites the public to explore the milestones. And when we began to walk upright, the enlargement of our brains, the origin of our complex social lives, our symbolic abilities, and even the ability to just speak with one another. (06:05) From the oldest known footprints, which you probably can't see it because it's behind the chairs, but
indicated at the bottom from the sight of Laetoli and Tanzania, we have exact replicas of the spacing and the actual sediment that's on display in the exhibition. From those oldest known two legged footprints dated to 3.6 million years ago to the expansion of the brain indicated by the arc of skulls there from two and a half million years ago to the present, from the oldest known technologies, very simply as flake stone tools, to the origin of sewing needles, the oldest ones back to about 30,000 years and the onset of the innovation and the creative explosion of art and symbols. And these are just some of the examples to look for in the exhibition. (06:59) The milestones that are encountered in the exhibition, for example, concerning the emergence of the earliest known human ancestors from fossils, going back to at least 6 million years ago, in line with genetic evidence of our connection with other living creatures, that with a common ancestor back to 6 million years. The oldest clear evidence and skeletons of walking upright on two legs at 4 million years ago, the development of the earliest technology and the expansion of diet, of the availability of foods that resulted as our ancestors began to make the first food processors outside of the body; sharp stone flakes and hammer stones. (07:48) Around 2.6 million years ago, followed by the expansion of the first known expansion of hominins outside of human ancestors outside of Africa. The expansion of the brain, which was most rapid, beginning about 800,000 years ago, and the control of fire around that time. And our species comes in toward the end of that narrative; 200,000 years ago, and associated then with the explosion in technology and beautiful forms of art and ultimately, the domestication of plants and animals, when our species became something of a turning point in the history of life and the ways in which we have modified our landscapes and changed world. (08:37) Now, what I'd like to do here, very briefly, is go over and sort of just list some of the core concepts about human evolution communicated in the exhibition. And the other speakers on the panel, are also aware of these and may integrate some of these into their remarks. (08:56) First of all, the origin of the distinctive features of our species did not
arise all at once. And this gets to this idea of milestones through time that you can explore in the exhibition. There is abundant evidence for the accumulation of adaptations to the surroundings related to how human beings walk, how our brains work, how we interact with our surroundings, how our social behavior became so elaborate, and so on. (09:31) There's also abundant evidence through the explosion of the environmental sciences. And this is the first exhibition to really focus on the parallels between the environmental sciences and the dramatic expansion in the fossil and archeological record and genetic record of human origins, that looks at the parallels between those two fields. That human ancestors evolved in dramatically changing surroundings, and that these caused some survival challenges. That helps us then understand a little bit more intuitively, the ways in which certain adaptations emerged at certain times. (10:11) In addition, one of the hallmarks of evolutionary history is that the benefits of particular adaptation sometimes come at a price, sometimes have a cost to them. So while walking upright was a great way for certain lineages in our family tree, for all of them really, to survive for certain degree of time, the occurrence of back pain, fallen arches, things like this that we experience even in our everyday lives, at least some of us, are the result of the fact that we do put all of our body weight on two legs rather than four. Or that the great expansion of our brains, this organ of tremendous plasticity that we have, is also one of the consequences of this, is the tremendous amount of the tremendously long period of time over which we grow up dependent upon adult care like no other species on earth is, and where that has shaped the organization of all human societies. And at the same time, it comes at the cost, if you will, the difficulties of childbirth that have been manifested through human history. (11:24) Another of these core concepts is that our species is connected to all other living organisms on the planet. There is continuity, where do we fit into the tree of life? The evolutionary tree is with the primates and that there is continuity in the evolved characteristics of human beings with those of our primate relatives. (11:46) Also like most other organisms
on earth, we're part of a diverse family tree, a evolutionary tree of species. And as diverse as it has been over the past 6 million years at different points in time, our species is the only one left of that diverse evolutionary tree of earlier species. All of those earlier species, and you get to in an imaginative way, encounter some of those in our exhibition. They all combined some facets, some elements of what defines our species today. And yet the fact that they're ways of life, those earlier ways of life are now all gone. They are no longer on the planet, I think is a fairly substantial thing for us to think about. (12:35) The new discoveries are motivated by new questions and these continually refine the narrative and the ways of figuring out. So advances in technologies, the fact that we can even find now genome sequences, DNA sequences, and Neanderthal bones is a technological feat, but will probably be an area of enormous undertaking over the next decade. That's something to look out for as we continually update our exhibition. (13:07) And then this final one that I'll put here, is that scientific discoveries pertaining to human evolution uncover changes in many of the defining qualities of our species, homo sapiens. And yet the public use of the term usage of the word human can be substantially broader than what science and evolution deals with. And I wouldn't say, can be. I would say almost certainly is broader than that. (13:35) And so what we do in the exhibition, and our goal, is to invite the public to bring their personal perspectives, their diverse perspectives, to the science. It's an informal learning environment and where the visitor can on their own terms, see how the scientific discoveries of becoming human as part of being human, how those scientific discoveries relate to their own and our own personal understandings of the term human. (14:08) Now, of course, this involves there, as we all know, there are challenges communicating human evolution and understanding human evolution that occurred particularly in the American in public. And this is despite the fact that there are many positive themes. It certainly one of the most compelling questions with regard to this theme of what does it mean to be human one can ask. But it's also
one of the most vibrant fields of scientific discovery. I came here from academia and I came here to the Smithsonian dedicated to the idea that the fossil evidence and the archeological discovery shouldn't stay behind a university classroom, but should be made available to the public. (14:50) And it is indeed a focus of public fascination, front pages of newspapers, not because it stirs any particular evolution, conflict, or controversy because people are fascinated with the subject and it does not provide, the subject does not provide conflict for many people. And yet we all know the survey results. The survey results have tended to emphasize dissent about the scientific findings and conflict between science and especially religious commitments and understandings of the world. (15:23) One way to examine this, is that the polls present the issue. In almost every case, the polls present the issue in terms of belief or acceptance with the possible answers about evolution or another way of conceiving of human origins, often based in religion, as alternatives. And this of course highlights the conflict mode and may preclude the public answering such polls to provide a more nuance understanding, which both is terrifically and with commitment and integrity, wishing to keep the foundation of their religious understandings of the world, while at the same time, embracing and enjoying the discoveries of science. (16:10) Our goal here at the Smithsonian is to try to, with this exhibition, to develop a deeper public understanding and discussion about human evolution. And we feel that this requires developing ways of creating a conversation or discussion, whether formally or informally, and making the science approachable and meaningful. (16:32) And so with this in mind, one of the goals of the Human Origins Initiative that I initiated, but which has been embraced by this museum all the way up to the secretary of the Smithsonian and the Board of Regents of the Smithsonian, is the formation of our Broader Social Impacts Committee. And this public event actually today is theirs, theirs to hold with you. And the ideas, the objectives simply put, it's a longer range of objectives can be put up, but to summarize them, the committee offers support and advice in light of potential
responses from diverse, religious, and philosophical and variety of cultural perspectives to the public presentation of the science of human evolution. (17:20) And we’re in the middle actually, right, even today and extending into tomorrow, of having a meeting with the committee, and the efforts of the committee is to help promote respectful discussion, where the science of human evolution interacts with a whole variety of societal understandings of the world that may transcend and do transcend science. (17:45) Their efforts on a practical level, I will be quite upfront this to you, the public, they have helped and participate in our volunteer training. The volunteers, we've had over 120 volunteers undergo training for interacting with the public in the exhibition hall. And part of their training has been to think about these concerns and interests of the Broader Social Impacts Committee to help us respond to public inquiries, where our responses need to go beyond the science and the scholarship in order to take those questions seriously and to answer them with genuineness, develop resources, to address the interest. You'll find the developing series, a set of resources on our website on a space that's specifically devoted to the Broader Social Impacts, and also to contribute to public events and programs, such as this one. (18:43) And so I want to then close by thanking the Broader Social Impacts Committee for its initial guidance and its ongoing input to the Human Origins Initiative. And it is my pleasure to introduce to you now, one of the two co-chairs of this group, who will moderate the rest of the session. Dr. Connie Bertka, since September has been at the Carnegie Institution of Washington, one of the foremost research institutions in DC. (19:18) Connie's PhD is in geology with a focus on planetary geology. And her master's degree is in theological studies from Wesley Theological Seminary, where Connie continues to teach part-time. And at the Carnegie, Connie directs the Deep Carbon Observatary. And before her role as director of that program, she was a program director of the Dialogue on Science, Ethics, and Religion at the American Association for the Advancement of Science. And so I thank you and please welcome Connie Bertka.
Dr. Connie Bertka: 20:10 Well on half of myself, my co-chair Jim Miller, and the Broader Social Impacts Committee, we would like to thank Rick Potts and the entire Human Origins team at the Smithsonian, for inviting our committee to contribute to the public outreach and engagement activities associated with this exciting new exhibit. (20:34) So have you had an opportunity yet to glimpse our earliest ancestors, to imagine their experiences, to discover their story, a story which belongs all of us? As a result of the contributions of decades of scientific research, this new exhibit brings that opportunity to all of us. The Hall of Human Origins provides a place for us to explore the scientific contribution to the question: what does it mean to be human? As Rick noted, recognizing just how profound this question is, and that for many people, it's a question that is informed by other perspectives, including religious and philosophical perspectives. (21:26) The Smithsonian support of public events like tonight's provides us with an opportunity to be part of that larger conversation. We hope that today's panel discussion, Religious Perspectives on the Science of Human Origins, will provide one example of how a thoughtful conversation about science and religion, one that goes beyond common conflict views, can encourage an ongoing engagement with the science of human origins presented in this exhibit. (22:07) Whoops, I'm hitting buttons up here.

Dr. Rick Potts: 22:11 Now you can see all of my files. You can cut the slides. It's okay. You can cut the projector for now. [inaudible 00:22:21]

Connie Bertka: 22:24 That'll do it. Yeah. I should've thought of that to begin with. There you go. Well, that takes care of Rick. (22:37) So from my perspective, this exhibit is inspirational and awe inspiring. And when you visit, which I hope you do soon if you haven't already, you'll continue crafting your own perspective. And our hope is that tonight's conversation is helpful to you in that effort. (22:59) Now, let me just say a word about logistics, so you know what to expect. We're going to begin by inviting 5 of our 14 committee members to introduce themselves and provide brief comments on
their perspectives or those of their religious communities or the communities that incorporate their fields of study, on the key scientific messages or core concepts on human evolution and human origins that Rick spoke about, or on human evolution in general. We'll then invite the other members of the committee to join us, introduce themselves, and at that point, respond to questions that all of you may have. So if I could go ahead and invite our first five committee members to come on up.

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