

## I came from where? Approaching the science of Human Origins from religious perspectives – Is there a fundamental lack of understanding of what science is, with regards to evolution in particular?

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Audience member: 00:19

I want to tell one really quick story, and then ask a question, particularly to the people on the panel who are teachers? The story is that on Capitol Hill, there's been an ongoing effort for quite a number of years that brings together in the offices of members of Congress preferably back in their home district. One religious leader, minister, rabbi, whatever, but preferably of the same denomination as the member of Congress. One scientific leader, preferably someone on the faculty at a university that's in that person's district, and one environmental leader similarly from that area who go to the member of Congress and talked to them about the fundamental need to protect particularly national forest, but wilderness in those areas. (01:09) I've been told that this is an incredibly powerful event. The first one I ever heard about the minister came in and said, "Well, I think it's a good idea if we start this meeting with a prayer." The member was just floored. He said it was the first time any constituent had ever asked him to do that. I understand they've had tremendous success with these gatherings. (01:29) Anyway, my question for the teachers on the panel is that my sense of, and I speak now as a former teacher, I used to be at Middlebury College, is not so much that the debate over, say creationism and the way people approach it vis-a-vis a scientific approach is not really about creation per se or a biblical story, it's more at the feet of a lack of understanding of what science is, not especially about evolution, but in any other act that there's a lack of understanding that this relates to going out, making observations about the natural history of the world, creating a hypothesis, standing up against all of the other conceivable hypotheses that you can think of at the time, and then leaving your hypothesis as the last man standing. (02:25) I think if you understand that, you don't think about evolution in the same way. So I'd like to hear the teachers comment on whether it's fundamentally a question of lack of understanding about what science is or about evolution per se.

Wesley McCoy: 02:42

I'll answer that partially, but I think other people in the panel could say some things as well. Certainly in my high school

students, in our classes, I always start the lessons with as much real science as I can so that my students are measuring, observing the natural world, recording the data, processing the data, communicating the data to each other. So we do as much real science as we can given 90 days of a semester. But then also, during the first week, I make sure that we address the idea of the nature of science. What science is, what science can do, what science can not do. We evaluate a number of questions and determine whether these are questions that would be science questions or not. So for example, determining who is the best composer, do you choose John Lennon or do you choose Schakowsky as your best composer? (03:37) That's not really a science question. You can't develop a music quality meter very well to determine which music people are going to like better. So there are certain questions related to the arts, sciences, justice, the concept of loyalty, concept of love and faith. Those kinds of questions are very difficult, if not impossible to answer simply with science. Therefore, we have philosophy, religion, poetry, music, as ways of addressing those things that are beyond the reach of science. (04:13) Then throughout the semester, we reflect back on that idea. Whenever we encounter an idea that may or may not be answerable by science. But I do think there are certain obstacles that we encountered that are perhaps placed in the way of evolution education by well-meaning, Sunday school teachers, or ministers who say things perhaps in too casual of a way about the way that their faith interacts with science and perhaps say, "No, we don't really accept evolution." (04:54) If you look at a number of, particularly Christian denominations in this country, there are quite a few denominations who have stepped up to the plate and analyzed the idea of evolution, and found it to be something that, they not only accept, but actually embrace as a way of explaining the natural world. It in no way conflicts with their religious view, yet somehow that information does not necessarily travel to the congregation, or to the families who are members of those churches. So, it would be important to increase communication among people about the importance of science and the importance of studying religion as well. So that's enough for me, but ...

Nancy Howell:

05:40

I suppose I'm another educator. There are two things I've observed. It is interesting to look at these issues when your vantage point is Kansas City, given our near neighbors in Kansas. One is, I noticed that every time the debate is raised about whether to teach creationism and, or evolution in public schools that there are certain conversations that begin online from those who are advocates of teaching evolution. I used to be on

all sorts of listservs until I got too frustrated with the lack of knowledge about evolution by those who were for it. (06:25)

The other piece of information I learned about Kansas is that teachers estimate that between preschool and the 12th grade students have probably three days of exposure to evolution, three school days. That explains why we know very little, but I teach graduate students. Then it's interesting for me to get students who have come through university and through that school system in my classes who also carry with them a legacy of knowing very little about evolution. So I find I do correct a lot of misunderstandings, and I refer students to resources that can help them catch up. (07:08) The point is to do it respectfully and to understand what is at stake for a student who has a misunderstanding about a particular point in the theory of evolution. I have to probe a little more deeply to find out why the question is important, why the misunderstanding occurred, what the source of the misunderstanding is, and what will move the conversation forward.

Connie Bertka: 07:34 [inaudible 00:07:34], did you have anything you want to add to that-

Nancy Howell 07:36 Well, I haven't taught mathematics. I never ran into that problem.

Rick Potts: 07:42 Yeah. If I could also comment since we've initiated in the course of the human origins initiative and the development of the exhibition, and what we are going to be doing and carrying forth from. We've had a lot of engagement interactions with science educators around the country. We've had some interesting discussions, none of which have really said, which is the top priority? But the discussions have focused on, well, what do we need? Do we need to have people have a better understanding of evolution? Do we need to have people, students, for example, have a better understanding of science? (08:25)

Do we need to start exposure to the concepts of evolution at a younger age, given that by the time evolution is supposed to be taught in school, there is already a 10-year, 12-year, sometime 15-year head start on other ideas about the world and the natural world? Do we perhaps need to provide opportunities where people can make a meaningful connection that evolution and the emergence of humankind is meaningful to our lives in a broader sense? (09:00) That's part of the approach that we've taken in the exhibition. The discussions always end up, yes, we can't necessarily rank those, but that all of those things are important, and it requires probably a broad

series of approaches and strategies to help engage people in the subject better. (silence).

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