

Interview with **Dra. Eugenie C. Scott**

Hesley Machado Silva¹

¹Centro Universitário de Formiga (UNIFOR-MG)



Dr. Eugenie Carol Scott is an American anthropologist who was the executive director of the National Center for Science Education (NCSE). She was a professor and researcher at the Universities of Kentucky and Colorado in the fields of Medical Anthropology and Skeletal Biology. But her name is remembered as a reference in the struggle for quality scientific education and against the teaching of the pseudo-sciences of creationism and intelligent design. With many articles published in the main academic journals of the world and several books, highlighting the recognized "Evolution vs. Creationism: An Introduction" and "Not in Our Classrooms: Why Intelligent Design Is Wrong for Our Schools"



James Underdown director of the Center for Inquiry West and the Independent Investigations Group (IIG) West awarding Dr. Eugenie Scott for his scientific merit to IIG, August 21, 2010.

Eugenie Scott has always been in the front line to prevent creationism from being taught in US schools. She has been rewarded by various scientific entities for her efforts in this line. She has several university degrees honoris causa, presided and is member of several American academic associations. Even for the merit of her academic life in favor of scientific education she received an unusual homage in 2014, having the Asteroid 249540 received the name of Eugeniesscott (2010 HX14).

*There is no space here to describe all of Dr. Scott's academic accomplishments, so we must thank, be proud, and enjoy the opportunity to interview the brilliant scientist in our *Conexão Ciência* journal.*

1- You are retired today, but from your curriculum, we can see that you are still linked to scientific education, in your opinion what is the main obstacle for the teacher who teaches science and biology today?

In the United States, students have many outside distractions. In addition to the usual school-based distractions like sports, extracurricular activities, social interactions, and the like, we now have students trying to cope with social media, games, and other distractions of digital communication, and still get an education. Science courses do not have very high status in the universe of secondary school students, so it takes a great deal more effort on the part of the teacher to get their attention and encourage them to learn.

2- Despite being an anthropologist by training, teaching and, in special, the science teaching was the focus of your career. In Brazil, the profession of the teacher has attracted fewer and fewer young people, I would like you to explain why you have gone the way of teaching and give a word of encouragement to our readers who think about being teachers.

I was never a teacher except at the university level, so I cannot claim to speak for them. But the teachers I have worked with over the years have found being an educator to be a hugely rewarding experience. It is very hard work, and in the United States, the pay is not adequate in most schools, but being able to make a big difference in the lives of perhaps thousands of young people over time, is hugely satisfying. You can spend your life doing work you don't enjoy, but you will not be happy. It's much more important to have satisfying work.

3- You have set your career for the defense of secular science education, without religious interference from movements such as creationism and intelligent design. Currently in Brazil this type of attempt occurs with proposals in the Congress for the teaching of creationism and creation of an institute of study and dissemination of the DI, give suggestions to face this kind of threat.

In the United States, it is not legal to advocate for or against individual religions, or for religion in general in the public schools: school must be religiously neutral. Most countries do not have this protection, and I do not know the situation in Brazil. However, to claim that any form of creationism is scientific, is mis-educating students, and handicapping them for a future in science, or even to be literate in science.

4- Currently this kind of pseudoscience, creationism and intelligent design, has achieved space in various parts of the world, such as Brazil, South Korea and Turkey. In your opinion, what is the reason for this negation of evolutionary theory? Why have you found so many supporters even with all the evidence that reinforces Darwinian theory?

In the states, although we have many very religious people, and a strong conservative Christian movement, we have legal protections against the advocating of religious views like creationism in the classroom. In other parts of the world where there is not a bright line between church and state, it is easier to promote a view like creationism. In the United States, Brazil, and South Korea, there exists a very conservative strain of Protestant Christianity that is favorable to biblical literalism, and thus creationism rather than evolution. People holding these religious views in these countries can be very aggressive in promoting creationism or anti-evolutionism. In the case of Turkey, the situation is more complicated. Turkey has plenty of conservative Muslims who believe in a literal creation story, and thus reject evolution, but there is also a political overlay in Turkey and some other parts of the Islamic world where evolution is associated with Western culture, and therefore to be avoided or. There is thus a second, political reason for some Turks to promote anti-evolutionism.

5- You have experienced this battle against creationism and intelligent design in the USA, a country where the population has intense religiosity, as well in Brazil. What was the biggest challenge that you encountered in this match?

It's hard to pick the single biggest challenge but certainly one of the most difficult things we have had to deal with in the United States is the idea that science has to be conducted using only natural causes. This is not because science is inherently antireligious, but simply because the essence of science is to test explanations before they are accepted. The only kinds of explanation that can be tested are natural explanations – not supernatural ones. It is impossible to hold constant the actions of supernatural entities, hence whether or not such beings exist, explanations involving their actions cannot be considered part of science. Therefore, creationism can never be considered science. Nonetheless, many Americans believe that creationism is "true", therefore it should be taught in science class. But science is limited to explanation only using natural causes. It is a limitation which has resulted in tremendous growth of understanding of the natural world, and it cannot be given up without a decrease in the explanatory ability of science.

6- From religious education to a scientist who advocates secular education and evolutionary theory. Tell us a bit about this trajectory and about this change.

I was raised in a liberal Protestant denomination, and enjoyed going to church and singing in the choir. As I got into college, I became less interested in religion and sort of drifted away. There was never a hard break, nor was it painful. As an anthropologist I appreciate how much religion means to most people, and that people like me who are not religious are the unusual ones! I am less concerned with whether someone is religious than whether that person is trying to make the world a better place; many religious people are doing so, and many secular people ignore the world's problems. My studying science was not related to my eventual abandonment of religion.

7- You have an extremely successful career in publishing articles and books that earned you great academic recognition. Many of our readers are searching for success in publishing articles and books, something highly valued in Brazil, give some tips for this goal.

I will have to beg off providing advice to your associates regarding publication success in Brazil! I am sure the situation there is quite different from anything that I am familiar with.

8- You have lived and live in the world research center, in the USA and especially in California. Many young researchers, our readers, are deciding their areas of research. What themes do you realize will be "hot" in world research in the coming years?

I think the hot science research issues of the future will depend on the particular scientific discipline. Certainly in the biological sciences there will be much growth in medically -related technologies. Both the biological and the physical sciences will need to cooperate in developing technologies to cope with the looming problem of continuing climate change, so young people will need to be broadly educated to be able to speak across disciplinary barriers. And don't forget the social sciences! In order to solve the problems of the future, whether they have to do with medicine, energy, agriculture, or any other area, the human dimension needs to be integrated; technology alone does not solve problems. It is the application of technology filtered through human needs and wants that will make the world a better place. As a result, the interdisciplinarity of biological, physical, and social sciences will be important in the future. So I would encourage young people to not specialize too narrowly at the university level, but try to get a broad feeling for

the natural and social sciences and the humanities as well. Eventually, it will pay off for you.

9- In your opinion, what are the most desirable characteristics for a scientific researcher? What would be essential for a young master's or doctoral student to be guided by you in an investigation?

Curiosity is essential. Without that, you cannot be a scientist. You also need to have a driving need to figure out how things work, and the discipline to be able to reject even favored explanations in the light of negative evidence, or lack of support. Thomas Henry Huxley once defined a tragedy as a beautiful theory slain by an ugly fact. Any scientist has to be able to give up explanations that don't work, as difficult as it may be.

10-You have developed your entire career in the USA, with great success, we have many young students who wish to go to North America to do masters and doctorates. Point out some tips for those who intend to study and work with science in the USA.

You ask difficult questions! Many Brazilians have succeeded in studying science in the United States, and have become scientists working in the United States. They would be better sources of information to answer your question and I would be! My feeling is, however, that American professors and scientists looking for postdocs or other researchers are looking for creative people who can work independently and come up with good, testable ideas.

Thank you for your support, attention and collaboration for the publication of the Journal, on behalf of the UNIFOR / MG (Centro Universitário de Formiga / MG) and the Conexão Ciência Journal.

*Dr. Hesley Machado Silva
Co-editor of Conexão Ciência Journal.*