
Odyssey of an Adventist Creationist

by Roy Benton

Dr. P.E. Hare, one of the two original scientists in the Geoscience Research Institute was interviewed by Roy Benton, consulting editor for *Spectrum* and chairperson of the Mathematical Sciences Department at Columbia Union College.

Benton: Please tell us about your background. Have you always been a Seventh-day Adventist?

Hare: I am a third generation Adventist. My grandfather, Robert Hare, was a poet, teacher, evangelist, and editor. He immigrated to New Zealand from Ireland in the 1860s, and was a boat builder in his 20s when Stephen Haskell came through as a missionary. Robert Hare was one of the first Adventist converts. He went to Healdsburg College in California, married my American grandmother Henrietta Johnson, and returned to New Zealand and Australia for the rest of their careers. They even served for a time on Pitcairn Island.

My mother's parents—J.E. Fulton and Susie Newlon—were also students at Healdsburg College and went to Fiji as pioneer missionaries. In fact, the college in Fiji is known as Fulton College still. My mother and father met at Avondale College and went to Burma as missionaries for 20 years.

Benton: Your father is Eric B. Hare who tells the stories that we all grew up with?

Hare: That's right: "the man with the eyebrows." I was the youngest of four children, all born in Burma. However, my earliest memories were of California where Dad was in conference work. After moving to Takoma Park, I finished grade school at Sligo Elementary School and attended Takoma Academy. I finished college at Pacific Union College, with a chemistry major in 1954, and went to Berkeley for a master's degree, then taught at Pacific Union College in the chemistry department for three years before going on to the California Institute of Technology (Cal Tech) for my doctorate in geochemistry, which I finished in 1962. I stayed on one year as a postdoctoral fellow and then joined the Geophysical Laboratory at the Carnegie Institution of Washington, where I have been since 1963.

Benton: In what ways are you active as a church member?

Hare: I enjoy working in the church. For several years I helped out in Sabbath Schools for college age and earliteen youngsters. At Sligo Church I am at present an associate head elder, as well as one of the Sabbath School superintendents.

Benton: Can you tell us what attracted you to your career in geoscience?

Hare: My interest in science goes back to my Takoma Academy teachers; one was Robert Hatt, who I believe is still teaching there. I took physics and general science

from him. I can't think of a more outstanding teacher that I had, and that includes some Nobel Prize winners at Berkeley and Cal Tech. Lester Harris, then a Columbia Union College biology teacher, was another motivating force. He took time to take us on camping trips and introduced me to the world of rocks and fossils. In college I took a chemistry major as well as several physics and math courses. I recall discussions on the age of the earth in atomic physics class when we covered radioactivity. I think that these topics interested me in the geological problems that the church faced.

Benton: How did those come up?

Hare: It was quite clear to me in some of the conversations during my college days that people like Harold Clark, Frank Marsh, Ernest Booth, and other stalwart Adventists, had gone into science and religion issues from the biological side. While I was in college, new developments such as the radiocarbon dating method had become the center of conversation; it seemed to me that in order to provide answers, a physical rather than a biological scientist was needed. I felt that my commitment to the church, my background, and my interest in science would help me make some significant contributions to the church.

The radiocarbon method was showing ages far in excess of 6,000 years for organic material and this, of course, was causing great consternation. It figured prominently at the 1952 Seventh-day Adventist college teachers' convention. Among the papers given at this meeting were several on the process for dating ancient objects with Carbon 14. R. E. Hoen, a long-time chemistry teacher at Pacific Union College, acted as a moderator at a roundtable discussion on the subject. The Adventist science teachers recognized that the Carbon 14 method gave dates that were almost always in harmony with the historical dates determined by counting tree rings, etc. Since it was quite clear that in many cases the Carbon 14 method of dating was valid,

we Adventists wondered, "Why wasn't it valid when it gave ages greater than 6,000 years?"

An interesting paper Hoen gave discussed scientific errors in denominational publications, including the *Seventh-day Adventist Bible Commentary*, which came out the next year, 1953. Fears were expressed that scientific accuracy might suffer because of the pressure of deadlines and lack of review time. Interestingly, it was considered unfortunate that only one person's philosophy

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(that of George McCready Price, the pioneer Seventh-day Adventist geologist who was the most prominent creationist of his time but who never encountered Carbon 14) would appear in the *Commentary* when some of the science teachers, for instance Clark, who had been studying Genesis for years, were completely ignored. So the 1952 conference recommended that all *Commentary* manuscripts be critically previewed by qualified scientists.

At the 1956 Quadrennial Session of Adventist science teachers, the biology subgroup recommended to the college administrators that the General Conference approve the idea, and in 1958 Frank Marsh, a biology teacher at Emmanuel Missionary College, and I were selected to begin what later became the Geoscience Research Institute. Within about a year Richard Ritland joined us. Marsh and Ritland were both at Berrien Springs, Mich., while I continued my doctoral program at Cal Tech.

Benton: At first, did you have any inkling that the church's traditional positions were in any danger?

Hare: Not really. In fact, I felt that if we could interpret the scientific evidence from a different point of view, we would find loopholes that would preserve most of our

church's traditional views. I felt some of the views might need to be modified somewhat, but not completely replaced.

Benton: Is it fair to say that the areas which you pursued as a graduate student and researcher were in many ways governed by the Adventist agenda on the question of science and religion?

Hare: No question about it. In 1956, while I was still teaching at Pacific Union College, I read an article entitled "Paleo-biochemistry" in *Scientific American* which showed that amino acids in the proteins of mollusk shells and bones were still present even in very old fossil shells and bone. The idea intrigued me, because if these materials were as old as they were claimed to be, then the presence of relatively unstable organic material might be very difficult to explain. On the other hand, if all or even most fossils were formed as a result of the flood, one should be able to show as well that the organic material, no matter what stratigraphic layer the fossil is found in, would have substantially the same sort of pattern since it was all essentially the same age.

Later, for my dissertation at Cal Tech I studied a sequence of fossil shells and showed that there was clearly a progression in the pattern of amino acids that correlated closely with the age determined by radiocarbon methods. We later developed techniques which are now used in probably a dozen laboratories throughout the world.

Benton: So the reason for your research was that you wanted to evaluate Carbon 14 and other dating methods, particularly as they applied to organic, or living things?

Hare: That's correct. The question always arose: what inherent problems do these age-dating methods have? When we talked about radiocarbon dating (which seemed to show a convincing progression of ages), we looked for weaknesses. But my independent method (relying on amino acids) ended up corroborating the Carbon 14 technique, which scientists considered reliable up to about 20,000 years. In fact, my method raised additional problems, because

it seemed to indicate ages for organic material in the millions of years.

Benton: When you came to your first preliminary results, how did this affect you as a scientist and as an Adventist?

Hare: The results were so consistent that I was forced to conclude that all fossils were not the same age, that there was indeed a

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definite progression in time with various fossil layers. I thought, "There must be some way of harmonizing this data with our scriptural views. I remember feeling, "It may be that we are going to have to reinterpret some of our traditional concepts in order to make the two harmonize." It was clear that a single event like the flood was completely inadequate to explain the geologic record. This, of course, did not fit with what George McCready Price had said. We constructed new models, and ironically, found ourselves repeating the efforts of 19th-century scientists who first seriously challenged the flood model as geologic evidence began to accumulate in the early 19th century.

Benton: Did you find that exciting, or painful?

Hare: It was painful, there is no question about that. But I also found it exciting. I remember reading in Ellen White that God's word in nature and God's word in Scripture shed light on each other if we read them both correctly.

Benton: Was that excitement shared by your colleagues at the Institute?

Hare: Ritland had reached somewhat similar conclusions a few years before I had. Marsh started with traditional interpretations of the Spirit of Prophecy and then looked to science as a support or vindication of those views.

Benton: When and why did you leave the Institute?

Hare: I actually moved back to Berrien Springs to join the Institute in 1961, a year before I had finished my degree, and had set up a laboratory and was doing work for my dissertation. Frequently, Ritland and I found Ellen White statements on science on our desks, left there by Frank Marsh, with which our scientific findings were supposed to harmonize. I left partly for that reason and also because it seemed the purpose of the Institute was to reinterpret results already published rather than to do original research, which was what I was most interested in. George McCready Price had been heavily criticized for doing all his geologizing from an armchair and never once going outside and hammering off fossils and rocks. We had said that we would be different; we wanted to see the evidence firsthand, to find out how serious the problems really were. Soon after the Institute began, fieldwork became a real hallmark of what we wanted to do. Even before Ritland joined us he took Marsh on a field trip on essentially the same route that almost all other Institute trips have followed since.

Benton: When you decided to take a leave of absence did you feel evangelical about your views on creation and geology?

Hare: One of the reasons I left the Institute was based on the fact that my evangelical fervor on these points was dampened by the people that I came in touch with. I would say, "Look at this data!" and I would often be met with hostility. I was answering questions that people hadn't even thought of asking as yet, and so I decided to lie low, keep studying, do more research, develop methods and only answer questions people asked me. I did not rule out the possibility that I would rejoin the Institute at some future time if it was mutually agreeable.

Benton: But you kept studying amino acids. Isn't that true?

Hare: Well, that became my pet area, because it looked very promising.

Benton: You developed a new, indepen-

dent method for time-dating which suggested that the earth and life on the earth are very old if this evidence is taken at face value.

Hare: That's right. The method doesn't provide dates different from other methods so much as it confirms what other methods have already concluded. For example, at first we had assumed that even if the inorganic part of the earth may be billions of years old, the organic materials might date only from creation week some thousands of years ago; yet the evidence for the antiquity of organic materials is really as strong as it is for inorganic materials. One of the greatest evidences for this antiquity—and something which I never see written up in any of the creationist literature today—is the depth of the biological sediments on the ocean floors.

Benton: This is something that you have directly studied.

Hare: Yes, the deep sea sediments. In many areas of the earth's ocean floors there is an accumulation of tiny single-celled shells which actually grow near the ocean surface where there is photosynthesis going on. After these forams live out their cycle, their tiny shells rain down just like snow onto the ocean floor and can accumulate to an enormous thickness, even kilometers-thick blankets of sediment. Consider what those enormous accumulations of biological material imply: a vast period of time. As you go down the column of sediments you get radiocarbon (Carbon-14) dates of 10,000 years when you are hardly down more than a meter and there are kilometers still to account for which are too old for radiocarbon dating.

Benton: "Too old for radiocarbon dating" means older than, say, 50,000 years by anybody's count?

Hare: By anybody's count the total age is probably millions of years and that is just on our modern ocean floors. Some people would like to argue that these are washed in . . .

Benton: . . . when they are trying to maintain a flood model?

Hare: Right. But the fact is that some of these are on top of flat-topped mountains that were eroded at the surface of the ocean once upon a time, but because of movements in the earth's surface have sunk now to below the surface and these accumulations are on top of these flat-topped mountains which means they must have formed after they sank. It is very difficult to imagine these as being washed up on top of the table, if you will. In addition, the oxygen 18/16 isotope ratio in these foram shells tells you the temperature the surface water was when the organism lived. These ratios all correlate from different areas as diverse as the North Atlantic and the Caribbean and reveal alternating warm and cold periods occurring worldwide. The idea of them being washed in just begs the question. They had to grow *somewhere*.

Benton: You were instrumental—no pun intended—in developing supersensitive equipment that was able to detect smaller levels than ever before of certain amino acids.

Hare: Yes. Our instrumentation has become very sensitive and, more recently, portable. We can even run it off the battery of a car, and it has been used in some remote places for geologic mapping, determining relative ages in deposits, and the like.

Benton: Speaking of remote places, you were well-known in some circles as being one of the first to examine some of the rocks that were collected from the moon. Why?

Hare: Before the Apollo project we had been looking at minute amounts of organic matter in fossils, rocks, and sediments, and we had developed very sensitive instrumentation. One group working on the lunar samples was interested in looking for any possible organic material or residues of organic materials.

Benton: What did you find?

Hare: We found carbon, nitrogen, and hydrogen materials, but not what we interpreted as *in situ* amino acids. There was certainly something there, though probably from solar wind and cosmic activity, things

like that. It was an interesting exercise, which certainly taxed our equipment to the very limit.

Benton: You have spent a lot of time thinking about the Geoscience Institute. Some say that any such institution operated by the denomination inevitably has its answers decided in advance, and then sets out to support them. They think that truly scientific research on these topics must be done by independent scholars in universities. Do you think Adventists should try to operate such an institute?

Hare: Looking back, I think it is a good thing that the Institute was established. Back in 1960, Richard Ritland and I went to the annual Geological Society of America meeting, the first Seventh-day Adventists who had ever gone to one. For some years we were the only two that ever went. But it wasn't long before a few others came, and now we may have 20 or 25 Adventists going. The last several years we have had an Adventist fellowship group that meets before the meetings start. I consider this a sign of progress.

When I was with the Institute, more than once I was accused by people of starting off with the answers and then trying to twist my laboratory data to match them. They said our situation at the Institute was analogous to a tobacco institute (supported by tobacco companies) which does research on cancer and its association with smoking. I remember not being very happy about that accusation, but there is an element of truth to it, because the sponsoring organization of an institute is obviously going to expect some degree of support and not answers that differ widely from what the group wants to hear.

Benton: Certainly a lot of change has taken place at the Geoscience Institute. The head of it today obviously holds that the inorganic material of the earth is very old, a position that was probably unthinkable to many of the people involved in the founding of the Institute. Do you feel that there has been change in the church's position, or at

least in its tolerance of divergent positions, over the last 25 years?

Hare: No question that there has been an increase in tolerance. Some of us feel that it has been too slow or too little; but there is no question that it has happened. If you compare typical Adventist views of, say, 25 years ago, there is a much broader range of views that are accepted today. Even 25 years ago there were some who felt that the earth's inorganic materials were very old; even Price during some stages of his career believed this.

Statements such as “In the beginning God created the heavens and the earth” stand on their own. We don't need to worry about how science is going to vindicate them.

Benton: Certainly one very large factor that looms in the science and religion debate in the Adventist Church is the role of Ellen White and the effect of subsequent Adventist history upon the discussion. What if it turns out that she got some of her ideas about science—for example, the earth being 6,000 years old—from her 19th-century contemporaries? Can there be room for a wide diversity of Adventist opinion that is true to the Bible and yet different from the views we have held in the past that can bring people like you back into the public life of the Adventist church?

Hare: I definitely think that's coming, and I base that on the fact that those of us who came across some of these problems 20 years ago when we read Ellen White's statements on geological subjects concluded that she was incorporating accepted contemporary scientific material. For example, her views on 'volcanoes and coal,' and 'fossils, trees, and animals much larger than any that now exist' were once popularly accepted concepts. Like a pendulum, it's easy to swing from one side to the other, and this worries me a bit. It makes it sound as if

in order to make any progress one has to jump this hurdle with Ellen White. It helps to remember that she also said, “Scripture and science shed light on each other.”

Benton: Still, it must come as some relief to find apparent confirmation of what you had already been thinking.

Hare: Yes. Now, when I find she was borrowing liberally from her contemporaries in areas other than science, I wonder if she really intended for her statements on science to be the last word or ultimate truth. I think she would be appalled at the way her statements have been used by many.

Benton: There has been a lot of debate in the popular press over the last few years concerning “creation science” and the public schools. In fact there was a trial in Arkansas at which several Adventists testified, including some from the Institute. Should “creation science” be taught in public schools?

Hare: I would like to see it taught in a historical context, emphasizing, “How did these different concepts develop?” rather than, “Are they scientific?” I also would like to see evolution taught, not as ultimate fact or law, but as a working model. Most of the high school and elementary textbooks are taking out statements that lead you to believe evolution is the last word. I would not like to see creation taught from a science standpoint. For one thing, there is such a wide diversity of views among creationists. “Scientific creationism” usually represents a very extreme view—a 6,000-year-old earth and a very definite set of conditions that gave rise to our geologic framework. Then, at the other extreme, we have the atheistic dogmatic view of evolution, which includes spontaneous generation of life, and represents, I feel, too extreme a view. Truth lies somewhere between these polar positions. There's room for study; the more diversity we allow, the better.

Benton: Even as a church?

Hare: I would like to see the Geoscience Institute sponsor more open group discussions, rather than just asking, “How did the

flood do this?" or "How did the flood do that?" They should consider, "To what extent can a creationist also believe in evolution?"

Benton: The Institute should act as facilitator rather than final arbiter?

Hare: Yes. They spent a number of years on flood models, and that's fine, but they ought to also consider some alternatives, because in the history of science and religion conflicts very rarely does it turn out that our original ideas are correct. They have to be modified frequently.

Benton: When it comes to the question of origins, would you call yourself a creationist?

By anybody's count the total age is probably millions of years and that is just on our modern ocean floors. . . .

Hare: I wish I could answer that simply; unfortunately, the words "creation" and "creationist" have been misused. Because of that, the "scientific creationist" view has been interpreted so narrowly that I hesitate to identify myself as one, though I do believe in a personal creator-God who created life, and that life is more than just chemistry and physics. On the other hand, I don't feel comfortable identifying myself as a mechanistic evolutionist either, because too many times people think you believe in the spontaneous generation of life—that something occurred by pure chance to produce what we see today. There is no question that there has been a lot of change. All 'evolution' really means is change, in a strict sense. There's a real need to study possible views that attempt to harmonize our religious and scientific concepts.

The real issue, as I see it, is the role of God in the universe (past, present, and future), and that cannot be determined by scientific methods. Each individual by some act of faith must make a choice. All of us see and interpret evidence differently. We must be prepared to allow divergence in models of

creation and earth history. If a person rejects any role for God in the history of the universe, he does so by choice and not from some overwhelming scientific evidence. If a person comes to the conclusion that life has been around on the earth for three billion years or so and makes a serious attempt to find a creation model to harmonize his religious views, we should encourage him rather than denounce him as an evolutionist! Let's widen the circle and keep him in it. Perhaps together we can come closer to truth.

Benton: Stephen Gould is an eminent naturalist and is also a very popular spokesman for the theory of evolution. He claims that no "creation scientist" has ever come up with anything but small chinks here and there in an otherwise fairly comprehensive, undeniable main body of theory which suggests that human life on this earth has evolved. Is that accurate?

Hare: That's hard for me to say because my own views have changed considerably over the years at different stages. At one stage I thought, well, creation week had to do with man and the domestic animals as we know them, and the whole geologic record preceded what I would call creation week. But the evidence for early man seems to be growing; the dating element is difficult to explain away; is early man of the anthropologist related to Genesis man? I have a lot of questions but few answers in this area. But Gould is correct in that most creationists have attacked evolution rather than provided a theory of their own. Evolution or creation is a false dichotomy because evolution in and of itself indicates that everything progresses without any intervention, and the mathematical improbability of molecules getting together to form proteins and cells is pretty impressive to me. Under some conditions in the laboratory you can make amino acids out of carbon monoxide, methane, ammonia, water vapor, and those kinds of things. For example, by adding enough energy such as ultraviolet light to cyanide one can get protein-like polymers—

but is that really the route for the origin of life? I recognize the “God of the gaps” argument—that given time, science will be able to explain even spontaneous generation in the way it has explained other actions formerly attributed to God. But again, I wonder if that isn’t going from one extreme—where you have all the gaps explained by God—to the other. Maybe the pendulum will come to rest and we will find out yes, evolution occurs but at times there has been intervention as well, perhaps in the origin of life, and perhaps later for man during creation week. We need a lot more study before we can sort out the answers in some of these areas.

Benton: You are known among your friends as a very serious, reliable and conscientious Seventh-day Adventist. Can you tell us why you find Adventism still palatable despite the problems?

Hare: That’s an easy one. I haven’t found anything better. If I based my religion on a few scientific facts I would be in trouble. At one point the Bible was interpreted so that “the four corners of the earth” meant that the earth must be flat, and because it was shown later that it wasn’t, some people gave up their belief in Scripture. Today, if I were to base my theology on the fact that science has to prove that the earth is 6,000 years old and everything that we see, including the universe, the sun, and the moon, and the stars, were created in six literal days at the beginning of the 6,000 years, then I would have a difficult time; the scientific evidence to me seems strongly against that. But I don’t think the Bible needs to be defended in that sense. Statements such as “In the beginning God created the heaven and the earth” stand on their own. We don’t need to worry about how science is going to vindicate these statements. Each generation, in fact each individual, is going to have to find its own relationship between science and religion. We cannot go back to Galileo’s time and put the sun as a satellite of the

earth. There were people who argued that if the world revolved around the sun, you would do away with the plan of salvation. Yet today we live very comfortably with the fact that the earth is not the center of the universe. We explain the Scriptural passages as reflecting the popular contemporary view of the author.

Benton: Do you see as one of your goals as a church member to help other people confronted with the same evidence make the difficult transitions you have?

Hare: I do. I see many people come to a critical point where they see the scientific evidence and its implications and cannot reconcile their traditional views. They say, “If the scientific evidence is right then my traditional view is wrong and I have to throw the whole thing out.” What I try to tell them is that perhaps some “traditional background” has no basis and shouldn’t interfere with science, because God is the author of science as well as the ultimate author of Scripture; if there are differences, we must either say that God is lying in one or the other, or else we are misinterpreting one source or the other.

Perhaps we don’t take Paul seriously enough when he said, “When I was a child I thought as a child.” We should realize that even some of our dedicated teachers do not have the last word in many of these areas. If we see a problem arise, I would like to back off and say that I don’t see any way out right now, but let’s not get discouraged! People hundreds of years ago never saw any way out of comparable dilemmas. Ultimately the answers came and were compatible with the scientific evidence. I rely a lot on the concept of nature and Scripture shedding light on each other. We find unity in the whole. Some of the things we were taught may not stand up today in terms of recent scientific evidence, but this should not be any reason to deny evidence from either nature or Scripture or to reject our religious heritage!