Grave of Peter Edgar Hare.

Photo courtesy of Robert Stanley Orrell. Source: *Find a Grave*, https://www.findagrave.com/memorial/73140425/peter-edgar-hare

Hare, Peter Edgar (1933–2006)

JAMES L. HAYWARD

James L. Hayward, Ph.D. (Washington State University), is a professor emeritus of biology at Andrews University where he taught for 30 years. He is widely published in literature dealing with ornithology, behavioral ecology, and paleontology, and has contributed numerous articles to Adventist publications. His book, *The Creation-Evolution Controversy: An Annotated Bibliography* (Scarecrow Press, 1998), won a *Choice* award from the American Library Association. He also edited *Creation Reconsidered* (Association of Adventist Forums, 2000).

Peter Edgar Hare, a Seventh-day Adventist geochemist, who held a successful career at the Carnegie Geophysical Laboratory, Washington, D.C., and made significant contributions to the study of amino acid chemistry specially as applied to questions of geochronology.

Early Life and Education

Peter Edgar Hare was born in Maymyo, Burma (now Myanmar) on April 14, 1933, the fourth child of Seventh-day Adventist missionary parents, Eric B. and Agnes Hare. Eric and Agnes were the first Adventist missionaries to the Karen people of Burma, and Eric B. Hare was a popular children's storyteller and author.[1]

Peter Hare's earliest memories were of California, where his father was engaged in church administrative work. The family soon moved to Takoma Park, Maryland, where Peter finished grade school at Sligo Elementary School and secondary school at Takoma Academy. In 1954 Ed, as he later was known to his colleagues, completed his

bachelor's degree in chemistry at Pacific Union College (PUC), the alma mater of grandparents on both sides of his family. Following college, Hare earned a master's degree at the University of California, Berkeley, in 1955. He taught chemistry at PUC for three years, and then earned a PhD in organic geochemistry at the California Institute of Technology (Cal Tech) in 1962.[2]

Research Career

While he was teaching at PUC, Hare read an article in *Scientific American* by Philip F. Abelson entitled "Paleobiochemistry". The article stated that 300-million-year-old fossils contained amino acids, the building blocks of proteins. Hare was intrigued and observed that if these fossils "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 [of amino acids] since it was all essentially the same age."[3]

With Abelson's article fresh in his mind, Hare chose to compare the amino acids in the shells of living and fossil mollusks for his PhD dissertation research. All amino acids in living organisms are "left-handed," but after the organism dies the amino acids gradually convert to a 50:50 mixture of "left-" and "right-handed" isomers (structural forms). Left and right, in this case refer to the direction light is rotated when passed through a solution an isomer. Given that some amino acids are more unstable than others, Hare hypothesized that the mix of right-handed and left-handed amino acids would be different in fossil shells of different ages. If, on the other hand, fossil mollusks were preserved in the rocks by the Genesis flood, they should all be about the same age and thus contain the same mixture of amino acids. To test his hypothesis, he analyzed the amino acids contained in stratigraphic sequence of fossil shells in California. To his surprise, the shells showed different mixtures of amino acid isomers, depending on at what level they were found in the stratigraphic sequence. Moreover, he found that the pattern correlated with the pattern of carbon-14 dates for these fossils. His results implied that the shells were not all the same age and therefore could not have been preserved by action of a single event such as the Genesis Flood.[4]

After completion of a one-year postdoctoral fellowship at Cal Tech, Hare joined the Geophysical Laboratory of the Carnegie Institution of Washington at the invitation of, Philip Abelson, the author of the *Scientific American* article that initially intrigued him. Abelson was impressed by Hare's work at Cal Tech and the two became friends. While at Carnegie, Hare developed equipment to analyze extremely low concentrations of amino acids. As a result of this work he was tapped during the early 1970s to investigate the possibility that the Apollo moon rocks contained trace amounts of amino acids, which turned out not to be the case. He and Abelson also developed amino acid racemization dating, a technique designed to determine the age of organic materials, and one subsequently used in laboratories around the world.[5]

During his career at Carnegie, Hare developed a world-class laboratory for the study of amino acid chemistry. He and his many students and colleagues continued to study the process of amino acid racemization and apply their understanding to studies of geochronology and stratigraphy. A 1978 symposium on their work led to a landmark publication entitled *Biogeochemistry of Amino Acids* in 1980, edited by Hare and two of his colleagues. Hare authored numerous articles in the scientific literature. A conference entitled "Perspectives in Amino Acid and Protein Geochemistry" was held in Washington DC, in honor of his retirement in 1998.[7]

Involvement with Seventh-day Adventist Church

In 1958, Seventh-day Adventist Church leaders recruited Hare, along with Frank Lewis Marsh, to begin work with what eventually became known as the Geoscience Research Institute (GRI). GRI was founded to help Seventh-day Adventists interpret scientific information in the context of an Adventist understanding of scripture and earth history. While at GRI, Hare maintained his research part-time at Carnegie. In 1964, Hare was informed by Reuben R. Figuhr, then president of the Seventh-day Adventist Church, that GRI was designed to look for problems with evolutionary theory; it was not to function as a center for scientific research. Given his interest and talent in research, Hare decided to leave GRI and devote himself fulltime to work at the Carnegie Institution.[8]

Throughout his life, Hare enjoyed a close connection and involvement with the Seventh-day Adventist Church. While at Carnegie, he was a member at Sligo Seventh-day Adventist Church in Takoma Park, Maryland. There he helped with Sabbath Schools for young teens and college age youth, and he served as both a Sabbath School superintendent and an associate head elder. In response to a question by an interviewer in 1984 about his close involvement with the Adventist Church, he said, "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."[9]

Death and Legacy

Peter Edgar Hare was widely known as the father of amino acid geochronology. He died on May 5, 2006, age 73, following an extended battle with Lyme disease.[10]

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NOTES

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[2] Roy Benton, "Odyssey of an Adventist Creationist," *Spectrum* 15, no. 2 (August, 1984): 46–53; Taylor, "Peter Edgar Hare (1933–2006)."

[3] Ibid.; Philip H. Abelson, "Paleobiochemistry," *Scientific American* 195, no. 1 (July, 1956): 83–92.

[4] Benton, "Odyssey of an Adventist Creationist."

[5] Wehmiller and Macko, "Ed Hare Obituary"; Taylor, "Peter Edgar Hare (1933–2006)"; P. E. Hare, P. E., K. Harada, and S. W. Fox, "Analyses for Amino Acids in Lunar Fines," *Proceedings of the Apollo 11 Lunar Science Conference* 2

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[8] Richard Hammill. "Fifty Years of Creationism: The Story of an Insider," *Spectrum* 15, no. 2 (August, 1984): 32–45; Ronald L. Numbers, *The Creationists: From Scientific Creationism to Intelligent Design*, Expanded edition (Cambridge, MA: Harvard University Press, 2006), 320–324.

[9] Roy Benton, "Odyssey of an Adventist creationist." *Spectrum* 15, no. 2 (August, 1984): 46–53.

[10] Wehmiller and Macko, "Ed Hare Obituary;" Gifford H. Miller, "Obituary. Peter Edgar Hare (1933–2006)"; Taylor, "Peter Edgar Hare (1933–2006)."
