## Memorial to Horace Gardiner Richards (1904-1984)

## RHODES W. FAIRBRIDGE

Department of Geological Sciences, Columbia University, New York, NY 10024



Horace Richards was a leading East Coast specialist in Cenozoic mollusca, being associated for many years with the Philadelphia Academy of Natural Sciences and the University of Pennsylvania. An indefatigable traveler, he developed an abiding interest in the faunas and forms of the late Cenozoic raised beaches around the world. He compiled and edited the invaluable *Annotated Bibliography of Quaternary Shorelines*, which spanned half a century and appeared in five volumes, including supplements. He served eight years (1969–1977) as president of the Shorelines Commission of INQUA, the International Union for Quaternary Research. His first paper was published in 1929; he published 292 titles during his lifetime, including seven books.

Richards was born in Philadelphia, March 21, 1906, where he spent most of his life. He died there on November 19,

1984. He was never married and lived with a sister, Marie A. Richards. His father was a professor of physics at the University of Pennsylvania. The family had a summer home at Cape May, New Jersey, where the abundant fossil beds attracted Richards' attention at an early age. He went to the William Penn Charter School in Philadelphia and then on to the University of Pennsylvania where he earned his A.B. (1927), M.S. (1929), and Ph.D. (in zoology and geology, 1932). He was associated with the U.S. Bureau of Fisheries on a survey of the marine life of the New Jersey coast from 1929 to 1931. In 1931–1932, he served as Associate Curator of Mollusks at the U.S. National Museum in Washington, D.C., and then became a research associate at the New Jersey State Museum in Trenton (1934–1940).

Richards joined the staff of the Academy of Natural Sciences in Philadelphia in 1937, serving as Associate Curator of Geology (1942–1960), chairman of the Department of Geology (1960–1972), and from then to the time of his death as Curator Emeritus. In connection with the Academy's survey of the coastal plain of North Carolina, which he organized, he was made Associate in Paleontology at the North Carolina State Museum in Raleigh, N.C. (1941–1943). In addition, he held part-time positions as lecturer in geology, University of Pennsylvania (1949–1971) and geologist (W.A.E.) in the Groundwater Division, U.S. Geological Survey, Trenton, N.J. (1949–1971). He was appointed Senior Research Associate at Lamont-Doherty Geological Observatory, Columbia University, Palisades, New York, in 1960.

The American Association of Petroleum Geologists honored Richards with its "President's Award" in 1946 for his work on the Cenozoic of the Atlantic Coastal Plain. For many years in the AAPG Bulletin he reported regularly on drilling progress there. Also appearing in the Bulletin was his excellent review of the Coastal Plain stratigraphy, from Long Island to Georgia. An extension of this work appeared in "Pal. cubed" (Palaeogeography, etc.) in 1968. The usefulness of the eustatic concept for correlation was clearly brought out, but care was taken to demonstrate how persistent transverse structures (like the Cape Fear Arch and others) subdivided the belt into distinctive embayments which developed in more or less discrete facies and sequences. He served the AAPG also on the Geologic Names and Correlation Committee (1946–1956), on the Subcommission on the Mesozoic (1946–1948), and on the Committee on Stratigraphic Correlation (1958–1963). He travelled on the AAPG Distinguished Lecturer circuit in 1946.

Richards was elected a Fellow of the Geological Society of America in 1942. He was also a member of the Paleontological Society, the American Malacological Union, and the Association Senegalaise pour Etude Quaternaire, as well as local societies, including the Cape May Geographic Society (past president).

Richards' field work took him to many parts of the USA, Arctic Canada, the Caribbean islands, Central America, South America, Easter Island, Europe, the Middle East, Africa, USSR, Japan, Fiji Islands, and elsewhere. He always seemed to be able to scrape up the funds for a student or associate to join him on his collecting travels. He is remembered with great affection by his many friends and students.

## SELECTED BIBLIOGRAPHY OF H. G. RICHARDS

- 1919 Freshwater snails in brackish water: Nautilus, v. 42, p. 129-130.
- 1930 Fossil mollusks and other invertebrates from the Hudson River Tunnel, New York and New Jersey: Nautilus, v. 43, p. 131-132.
- 1932 The Subway Tree—A record of a Pleistocene cypress swamp in Philadelphia: Bartonia, v. 13, p. 1-6.
- 1933 Marine fossils from New Jersey indicating a mild interglacial stage: Proceedings of the American Philosophical Society, v. 82, p. 181-214.
- 1936 (with MacClintock, Paul) Correlation of Late Pleistocene marine and glacial deposits of New Jersey and New York: Geological Society of America Bulletin, v. 47, p. 289-338.
- 1936 Fauna of the Pleistocene Pamlico Formation of the southern Atlantic Coastal Plain: Geological Society of America Bulletin, v. 47, p. 1611-1656.
- 1937 Land and freshwater mollusks from the island of Cozumel, Mexico, and their bearing on the geological history of the region: Proceedings of the American Philosophical Society, v. 77, p. 249-262.
- 1938 Marine Pleistocene of Florida: Geological Society of America Bulletin, v. 49, p. 1267-1296.
- 1939 Marine Pleistocene of the Gulf Coastal Plain: Alabama, Mississippi, and Louisiana: Geological Society of America Bulletin, v. 50, p. 345-354.
- 1940 Marine Pleistocene fossils from Newfoundland: Geological Society of America Bulletin, v. 51, p. 1781-1788.
- 1943 Fauna of the Raritan Formation of New Jersey: Proceedings of the Academy of Natural Sciences, v. 95, p. 15-32.
- 1945 Subsurface stratigraphy of Atlantic Coastal Plain between New Jersey and Georgia: American Association of Petroleum Geologists Bulletin, v. 29, p. 885–955.
- 1950 Geology of the coastal plain of North Carolina: Transactions of the American Philosophical Society, v. 40, pt. 1, p. 1-83.
- 1953 Record of the rocks: New York, Ronald Press, 413 p.
- Geophysical and stratigraphic investigations in the Atlantic Coastal Plain: Georgia Geological Survey Bulletin, v. 60, p. 101-115.
- 1958 The Cretaceous fossils of New Jersey (Part 1): New Jersey Geological Survey, 266 p.
- 1959 The story of Earth Science: Philadelphia, J.B. Lippincott Co., 169 p.
- 1960 The dating of the "Subway Tree" of Philadelphia: Proceedings of the Pennsylvania Academy of the Sciences, v. 34, p. 107-108.
- 1962 (with others) The Cretaceous fossils of New Jersey (Part 2): New Jersey Geological Survey Bulletin, v. 61, pt. 2.
- Studies on the marine Pleistocene: Part 1. The marine Pleistocene of the Americas and Europe: Transactions of the American Philosophical Society, v. 52, pt. 3, p. 1-41.
- 1963 (with Broeker, W.) Emerged Holocene South American shorelines: Science, v. 141, p. 1044-1045.

- 1965 (with Fairbridge, Rhodes) Annotated bibliography of Quaternary shorelines: Philadelphia Academy of Natural Sciences Special Publication 6, 280 p.
- 1967 (with Lecointre, G., and Tinkler, K. J.) The marine Quaternary of the Canary Islands: Proceedings of the Philadelphia Academy of Natural Sciences, v. 119, p. 325-344.
- 1968 Catalogue of invertebrate fossil types at the Academy of Natural Sciences of Philadelphia: Philadelphia Academy of Natural Sciences Special Publication 8, 222 p.
- 1970 Annotated bibliography of Quaternary shorelines; Supplement 1965–1969: Philadelphia Academy of Natural Sciences Special Publication 10, 240 p.
- 1972 Sea level during the past 11,000 years as indicated by data from North and South America: Quaternaria, v. 14, p. 7-15.
- 1974 Structural and stratigraphic framework of the Atlantic Coastal Plain, in Oaks, R. Q., Jr., and DuBar, J. R., eds., Post Miocene stratigraphy of the central and southern Atlantic Coastal Plain, Logan, Utah State University Press, p. 11-20.
- 1979 (with Shapiro, E. A.) Annotated bibliography of Quaternary shorelines; third supplement 1974-1977: Norwich, England, Geo Abstracts, 245 p.