The Multi-Stranded Career of Leo J. Hickey
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Introduction

Leo J. Hickey was born in Philadelphia on 26 April 1940. He attended a minor seminary in Indiana for high school, then earned a B.S. from Villanova University in 1962. Leo went to Princeton University to work on his Ph.D. in geology under the supervision of Erling Dorf, receiving his degree in 1967. After completing his doctorate, Leo was a postdoctoral fellow at the Smithsonian Institution’s Museum of Natural History until 1969 when he was hired as a curator in the Department of Paleobiology. In 1982 he left the Smithsonian for Yale University, becoming director of the Peabody Museum of Natural History and professor in the Department of Geology and Geophysics and the Department of Biology. Leo was director of the Peabody for five years, and then returned to research, teaching and work on the Peabody Museum’s collections and exhibits. He served as chair of the Department of Geology and Geophysics from 2003 to 2006. Leo remained active in research, teaching and exhibits until shortly before his death on 9 February 2013.

Leo Hickey was an imaginative and iconoclastic scholar whose ideas had wide influence across many areas of biology and geology. In botany, he made fundamental contributions to understanding the morphology, systematics, phylogeny and evolution of flowering plants. In paleontology he carried out groundbreaking studies in paleoecology, paleoclimate, biostratigraphy and the study of mass extinctions. Throughout his 45-year scientific career Leo’s most important insights reflected his twin interests in geology and botany, as well as his remarkable depth of knowledge in both fields. Below we outline some of Leo’s major contributions, emphasizing a few case studies of his best-known work, including leaf architecture, angiosperm evolution and radiation, early Paleogene plant communities and the extinction and response of plants to the Cretaceous–Paleogene boundary mass extinction event.

Leaf Architecture and Angiosperm Systematics

Angiosperm leaf fossils are abundant in terrestrial rocks of Cretaceous and Cenozoic age, and as a result they were studied early in the development of paleobotany. From the 1820s to the 1940s, leaves were a major basis for interpreting terrestrial paleoenvironments and biostratigraphy. Unfortunately, most fossil leaves were identified by superficial matching of their general form with living genera, which led to inconsistent recognition of morphotaxa and rampant botanical misidentification. As a consequence of this flawed approach, paleoclimate had been misinterpreted, trends in angiosperm phylogeny had been misrepresented and biostratigraphic patterns had been obscured. By the 1960s, the field suffered from a nearly complete loss of credibility.

When Leo entered paleobotany in the 1960s he saw great potential in the fossil record of angiosperm leaves—if they could be recognized consistently and identified successfully. He was writing up his Ph.D. thesis on the Paleocene–Eocene flora of the Golden Valley Formation of North Dakota when it became clear that many of the names that had traditionally been applied to the fossils were botanically incorrect. He later described the horrible sinking feeling that came from realizing he had been building castles on a