Warren Bell Hamilton

May 13, 1925 – October 26, 2018

Warren Hamilton passed away at his home in Golden, Colorado, on October 26, 2018, at age 93. His primary career as a research scientist with the USGS garnered many honors including membership in the National Academy of Sciences and the Geological Society of America's highest honor, the Penrose Medal. He was a geologist known globally for integrating observed geology and geophysics into highly original planetary-scale syntheses describing the evolution of Earth's crust and mantle. After earning a PhD from UCLA, Warren joined the faculty of the University of Oklahoma for a year before beginning a more than forty-year career at the USGS. The scope of his scientific contributions at the Survey rivals any since G.K. Gilbert's. After Warren moved in 1996 to be a Distinguished Senior Scientist in the Department of Geophysics at the Colorado School of Mines he continued research and teaching through 2017, and also mentored students as an adjunct professor at the University of Wyoming.

As Bill Dickinson explained three decades ago, Warren made megathinking respectable in geoscience. He was widely known as an iconoclastic innovator of big earth science ideas, with an uncanny ability to integrate disparate evidence into novel geoscience concepts. He was never one to coddle colleagues or ideas with which he disagreed, and authors of rival ideas sometimes felt taken aback by his forceful written dismissals of long-cherished concepts; but students and colleagues fondly remember his sincere listening and communication skills, warmth, and good humor.

He managed over his career to see a disproportionate share of the world's geology of all ages, often in the company of local experts. What he saw, integrated with geophysics and other disciplines, spurred a lifelong series of innovative concepts about how the Earth works and how it evolved. Early in the plate-tectonics revolution he championed and invented new tectonic explanations of diverse regions including Antarctica, the Rocky Mountains, Colorado Plateau, California, and the Urals. Warren's masterful 1970s integration of onshore geology of Indonesia with offshore geophysics brought new understanding of convergent-plate interactions, with observations showing that plate boundaries change shapes and move relative to most others. The Indonesia synthesis led him to understand hinges as rolling back into subducting oceanic plates which sink broadside, not down their inclined dips. He forcefully promoted the view that plate tectonics is driven by top-down-cooling of ocean-floor slabs, whose sinking drives overriding plates forward and spreads oceanic lithosphere behind.

He worked at multidisciplinary integration of data on many big topics: whole-Earth geophysics and mantle evolution; kinematics of plate tectonics; contrasts between the rock assemblages produced by Phanerozoic plate tectonics and those of the first four billion years of Earth history; and innovative interpretations of evolution of Earth and well as of Venus, Mars, and our Moon. These huge topics were advanced forcefully in numerous publications, updated and summarized in a 2015 paper in a joint GSA/AGU volume. He vigorously

contested conventional ideas of deep-seated plumes on Earth, Venus, or Mars and replaced them with new views of how the planets differentiated and evolved. Whether or not one agrees with some of his unconventional proposals, they demand and portend expanded scientific debate and rethinking of long-entrenched concepts.

Warren's obituary is available at:

https://www.legacy.com/obituaries/denverpost/obituary.aspx?n=warren-b-hamilton&pid=190635114.

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