Memorial to John T. Hack 1913–1991

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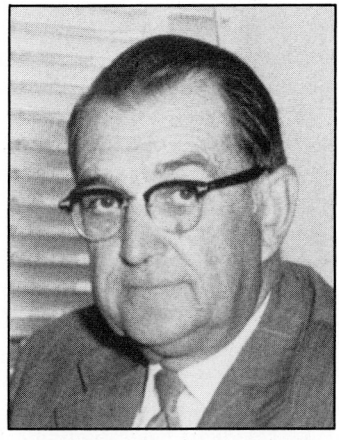

John Tilton Hack, born December 3, 1913, in Chicago, Illinois, was a career geologist with the U.S. Geological Survey who was largely responsible for introducing the concept of dynamic equilibrium into geomorphic and hydrologic studies. This concept was first proposed by G. K. Gilbert over a century ago, but it was greatly overshadowed by William Morris Davis's hypothesis of time-dependent cycles of erosion for the evolution of landscapes. A series of seminal papers by John Hack, published mostly in the period 1957 to 1965, provided an enthusiastically embraced alternative to Davisian thought that established equilibrium as a fundamental, time-independent geomorphic model. He was the recipient of the Distinguished Career Award from the Quaternary Geology and Geomorphology Division of the Geological Society of America in 1990.

John, or Johnny to his numerous friends and colleagues, entered Harvard University in 1931, from which he was awarded the A.B., M.A., and Ph.D. degrees in 1935, 1938, and 1940, respectively. Johnny's principal advisor in graduate school was the famed geomorphologist, Kirk Bryan, who had resigned from the U.S. Geological Survey to accept the chair at Harvard vacated by William Morris Davis. John's dissertation research was conducted in northeastern Arizona during the summers of 1937, 1938, and 1939 while he was a member of the Awatovi Expedition of Harvard's Peabody Museum. Johnny was project geologist for the expedition, whose focus was an archaeological site at the eastern edge of the Hopi Indian Reservation. Among other staff members and students from Harvard on the expedition were two grandchildren of William Morris Davis. Classic papers that resulted from the Awatovi work included "Dunes of the western Navajo Country," and "Prehistoric coal mining in the Jeddito Valley, Arizona." The Jeddito Valley study, which included the naming of geologic formations of the area, was the original documentation of the mining and use of coal by native Americans.

Following completion of his doctorate in 1940, John accepted a teaching position at Hofstra College (now Hofstra University) in Hempstead, New York. After two years on the faculty, however, he was recruited into the U.S. Geological Survey by lifelong friend Wilmot H. (Bill) Bradley, who would serve as the Survey's Chief Geologist from 1946 to 1960. At that time, Bradley headed the Survey's Military Geology Unit, a terrain-intelligence group headquartered in Washington, D.C., that had been formed to conduct landscape analyses, study beaches for amphibious landings, and suggest locations for airstrips in both the European and Pacific theaters of World War II. John served in a part of the Military Geology Unit that was sent to Pearl Harbor, Oahu, Hawaii, in November 1944, to help with preparations for the invasion of Japan. The next September, after the war had ended, Johnny returned to USGS headquarters in Washington, D.C., to resume peacetime duties.

Shortly after returning, John became involved in various administrative duties as an assistant to Bill Bradley, the newly appointed Chief Geologist. It was at this time that he also began his series of classic studies of the geomorphology of the Appalachian Mountains and adjacent areas. The first, "Geology of the Brandywine area and origin of the upland of southern Maryland," was conducted with C. C. Nikiforoff, a Russian refugee and soil scientist whom Johnny had met through a colleague in the Military Geology Unit. Nikiforoff had developed principles of soil equilibrium, and by analogy, these principles were later applied by John to Appalachian landscapes; combined with the earlier work of Gilbert, they became the basis of John's open-system concept of dynamic equilibrium.

During the postwar period to 1966, when he was selected Assistant Chief Geologist, John was part of a small group of earth scientists working collectively on problems centered in the Appalachian Ridge and Valley province. This group, which also included C. C. Nikiforoff, C. B. Hunt, and former fellow graduate students from Harvard L. B. Leopold, C. S. Denny, M. G. Wolman, and J. C. Goodlett, was the source of many highly recognized papers. The most influential paper, however, the one defining dynamic equilibrium as a concept of general applicability to landscape studies, was John Hack's 1960 discussion in the Bradley Volume of the American Journal of Science, "Interpretation of erosional topography in humid temperate regions." Johnny had recognized the importance of his Bradley Volume paper and intentionally placed it there to help honor and show loyalty to his friend and colleague, Bill Bradley. Other products of John's work and his interactions with group members included benchmark papers on the geomorphology and ore deposits of the Shenandoah Valley, interpretation of intrenched meanders of the North Fork Shenandoah River (with R. S. Young), interactions of geomorphology and forest ecology following historic flooding in the Little River basin of Virginia (with J. C. Goodlett), and longitudinal stream profiles in Virginia and Maryland, for which he received the Geological Society of America's Kirk Bryan Award in 1960.

John's loyalty to friends and to the Survey's Geologic Division was demonstrated in various ways. After Luna Leopold was appointed Chief Hydraulic Engineer of the Survey's Water Resources Division in 1957, he offered John a position with complete freedom to pursue research interests of his choice. Although tempted, John declined and continued to conduct his Shenandoah Valley studies for the Geologic Division until 1966, when he reluctantly agreed to serve as Assistant Chief Geologist. His hiatus from research continued into 1971, at which time he returned to field studies. From the period 1971–1981 came a number of reports, including two USGS Professional Papers and contributions to the Decade of North American Geology series.

Johnny retired form the U.S. Geological Survey in 1981, but he continued to work part-time and on a volunteer basis until 1988. From 1981 to 1983 he served on the faculty of George Washington University as an adjunct professor. Throughout his extraordinary career, Johnny maintained a variety of interests, from boating in Chesapeake Bay to determining the ecological conditions best suiting white oaks, from speleology to Civil War history in the Shenandoah Valley, from science to scientific societies (John was elected a Fellow of the Geological Society of America in 1943, and was awarded the G. K. Warren Prize by the National Academy of Sciences in 1982), from teaching to his family.

John T. Hack and Clare Ferriter, an artist, were married in 1942 and became the parents of a son and daughter, John T. Hack, Jr., and Katherine Ferriter Kelly. Their home in Washington, D.C., was a studio for Clare and became an evening lyceum for area artists and a haven for visiting scientists. John T. Hack is revered as a scientist and was adored as a gentleman; he died at their home in Washington, D.C., on December 15, 1991.

Acknowlegments: Information summarized here was collected from numerous people for various reasons. Primary sources, however, to whom we express our appreciation, include Gordon Wolman, Luna Leopold, Watson Smith, and especially Clare and Johnny himself.

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