

Memorial to Owen P. Bricker III (1936–2011)

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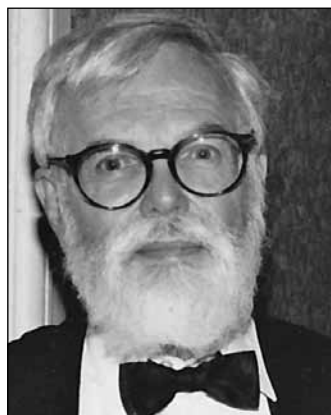
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Owen P. Bricker III died at his home near Baltimore, Maryland, on 23 March 2011 after a long illness. He made seminal contributions to the scientific understanding of how water chemistry reflects the rates of chemical weathering reactions that break down bedrock minerals. Owen will be especially remembered for bringing the approaches of aqueous geochemistry to the study of surface-water chemistry in small watersheds. This approach is reflected in his numerous papers that helped define how variations in the mineralogy of the underlying bedrock geology are dominant controls on the sensitivity of surface waters to acidification by acidic precipitation.

Owen was born in 1936 in Lancaster, Pennsylvania. He became interested in the study of geology at an early age, and graduated with a B.S. in geology and a minor in chemistry from Franklin and Marshall College in 1958. He later earned an M.S. in geology from Lehigh University in 1960 and a Ph.D. in geology from Harvard in 1964 with a focus on mineral-water interactions. Owen published a landmark paper in *American Mineralogist* in 1965 on stability relations among manganese, oxygen, and water that was based on his dissertation research (Bricker, 1965). That same year, he began as an assistant professor of geology at Johns Hopkins University, where he taught courses in mineralogy, geochemistry, and oceanography; mentored graduate students; and published several papers on mineral-water interactions in fresh waters, marine waters, and sediment. During this time, he also published a paper on mineral-water interactions that occur as silicate minerals weather (Bricker et al., 1968), which was later selected to appear in the Benchmark Papers in Hydrology Series by the International Association of Hydrologic Science, and is still considered a foundational paper in aqueous geochemistry courses and textbooks. Owen also published many seminal papers



during this time with other pioneers in aqueous geochemistry such as Bob Garrels (who served as his Ph.D. advisor), Fred MacKenzie, and Roland Wollast.

Owen served as an associate professor at Johns Hopkins University from 1970–1975, after which he began a 5-year tenure with the Maryland Geological Survey (MGS), where his research focused on the geochemistry of Chesapeake Bay. In 1975, he was honored as an elected Fellow by the Geological Society of America, and a year later, his early work on mineral-water interactions was recognized by his election as a Fellow of the American Mineralogical Society. In 1979, he began a 3-year tenure at the U.S. Environmental Protection Agency where he helped design and establish the Chesapeake Bay Program. During this period, Owen developed a strong interest in the use of science to inform public policy, an endeavor he pursued throughout the rest of his career. Additionally, his work at MGS was the start of his tireless advocacy of the importance of long-term environmental monitoring.

In 1981, Owen joined the U.S. Geological Survey (USGS) in Reston, Virginia, as a senior research scientist, the position he would hold for the rest of his career. The 1980s were a time of growing concern about the effects of acid precipitation on fresh water ecosystems as the U.S. sought scientific information on where the most sensitive ecosystems were located, why sensitivity varied widely geographically, and what factors and processes controlled sensitivity to ecosystem acidification. Owen immediately began to address these questions by initiating and spearheading USGS research on acidification through the establishment of several small watershed research sites in Colorado, Georgia, Maryland, New York, and Virginia. His research was based on long-held tenets of the fundamental role of bedrock and soil mineralogy on the relative resistance of waters to acidification by acid rain. These tenets were borne out through numerous investigations at these research sites and his publication of more than 25 papers and book chapters on this subject through the rest of his career. In 1985, Owen's research and leadership were recognized by the "Honor Award for Superior Service," given for his national recognition as a leader in USGS efforts to study the effects of acid rain on water resources. Six years later in 1991, he was again recognized by an "Honor Award for Meritorious Service," given for his exceptional contributions to research programs of the USGS through the study of rock weathering, acid precipitation, the geochemistry of water, and estuarine sediment composition.

Perhaps most notable during his time at USGS, however, was the pivotal role he played in encouraging and mentoring young research scientists. These scientists learned the "small watershed research approach" from Owen, furthering his contribution to the scientific understanding of acid-rain effects on surface-water chemistry. Many of the students he mentored, as well as colleagues and professional associates who were influenced by him, have gone on to notable careers as research scientists at USGS and elsewhere.

Owen continued to pursue his research on aqueous geochemistry through small watershed investigations until 2006 when he formally retired. During the latter part of his career he published papers on environmental monitoring and returned to earlier interests in trace-metal geochemistry in tributaries to Chesapeake Bay. He was honored as an elected Fellow by the American Association for the Advancement of Science (AAAS) in 2009. The citation for his election as an AAAS Fellow exemplifies his most lasting contributions as a pioneer in the field of aqueous geochemistry and his unstinting support and mentoring of young scientists in the field of watershed biogeochemistry. He also was a member of the Cosmos Club of Washington, D.C., a social club for distinguished members of the scientific, literary, and artistic communities.

Owen will be remembered as a kind and genteel person, quiet and unassuming, but whose reach of influence was extensive. He was generous with his scientific data, his time, and his ideas. He loved the outdoors, including hunting, fishing, and hiking, and he was an excellent shot on the skeet, trap, and sporting clay ranges. He was also a devoted husband, father, and grandfather and is survived by his wife Anne, three daughters, Amy, Suzanne, and Emma,

and their families, including seven grandchildren. He was preceded in death by his daughter, Katherine. His daughter Suzanne continues his legacy as a prominent research scientist at the National Oceanic and Atmospheric Administration.

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