

Memorial to John J. Anderson

1930–2017

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John J. (Jerome) Anderson died on 30 October 2017, at his home in Seattle, Washington, from heart failure. He is survived by his wife, Linda Jones Anderson, his daughters, Janet Eulalia Anderson and Kathryn Anderson Wellen, and his grandchildren, Mary Hadley Simmons, Anneke Roos Wellen, and Lydia Jasmijn Wellen. John was predeceased by his older brother, Poul Anderson, a prolific author of science-fiction books. Linda was the love of John's life, and she and their two daughters were the source of a happy marriage and family, of whom he never ceased boasting. John met Linda Jones during his first season (1963) of field work (mapping) on his Ph.D. dissertation, when in a major stroke of luck he needed a bar of soap and happened into Bulloch's Drug Store in Cedar City, Utah, where Linda Jones, then a coed at the University of Utah, had a summer job. They married on 25 July 1964.



John was born in Port Arthur, Texas, on 10 October 1930, to Astrid and Anthon William (Will) Anderson. Astrid Hertz had emigrated from Denmark, whereas Will was born in Pennsylvania but educated in Denmark; they were married in Port Arthur. Will died in an auto accident in Port Arthur, and widow Astrid W. Anderson and her two children moved to Northfield, Minnesota, to be near her brother Jakob Hertz, who lived there. Here, Astrid became a reference librarian at the Carleton College library. In 1948, John graduated from Northfield High School. He attended Carleton College from 1948 to 1952, where he graduated cum laude in June 1952 with distinction in his major and a member in Phi Beta Kappa and Sigma Xi. His major was history, of all things. He received a Fulbright Scholarship and studied history in 1952–1953 at the University of Copenhagen, Denmark. He then attended Cornell University, Ithaca, New York, for one academic year (1953–1954), studying political science. He was drafted into the U.S. Army in October 1954 and served until August 1956 as a personnel specialist, with his main duty tour (12 months) in Iceland. He was inactive with the U.S. Army Reserve until 1959.

Finding geology, John attended graduate school at the University of Minnesota, Minneapolis, from 1957 to 1962. His thesis advisor was J. Campbell (Cam) Craddock, the pre-eminent U.S. specialist in the geology of Antarctica and a much-loved and productive researcher and teacher. John's thesis was to be on the geologic study and analysis of part of the Ellsworth Mountains, the highest range (over 16,000 feet elevation) in Antarctica and previously unvisited. But the timing of the trip was delayed by the funding agency, the National Science Foundation (NSF),

so John used his history background to do a thesis on the “Bedrock geology of Antarctica,” which in 1965 was published as a large, important summary article. The trip to “The Ice” was finally scheduled from October 1961 to February 1962, with Cam to lead a joint program of students from the Universities of Minnesota and Wisconsin. Unfortunately, Cam became sick at the last minute, and John—as Cam’s research fellow—was appointed to lead the field party, never having been to Antarctica previously! Using logistics by the U.S. Navy, John and the other students flew to McMurdo Station, then to the Ellsworths, where geologic mapping began in the world’s largest unexplored mountain range! They lived in two-man Scott tents and traveled by motor toboggans (predecessor of snowmobiles). Except for marriage to Linda, John noted many times later that it was thereafter impossible to replicate such a personal and professional high as was his work in this beautiful, huge range! Anderson Massif, a 12-mile-long mountain mass in the Ellsworths, was named after him in 1968. He was awarded a U.S. Congressional Antarctic Service Medal in 1969. He received an M.S. in geology, with a minor in geophysics, in June 1962. He was senior author of a 1962 article on the geology of the Ellsworths in the prestigious journal *Science*, which included a dramatic photo on the cover of this issue of one of their tent camps at the base of a mountain, swathed in clouds. An enlarged framed version of the photo thereafter hung in his office or home.

From September 1962 to June 1965, John attended the University of Texas, Austin. He chose Professor J. Hoover Mackin as his dissertation advisor. The year before, Hoover had been hired away from the University of Washington to fill the first endowed chair in the Department of Geology. Best known as a geomorphologist and a member of the National Academies of Sciences, Hoover in fact was a field geologist and geologic mapper who had been supervising graduate students mapping mostly in southwestern Utah, not far from the Iron Springs iron mining district where, as part of the war effort during World War II, Hoover had a temporary assignment finding and mapping ore bodies with the U.S. Geological Survey (USGS). More importantly, Hoover was a genius who was renowned as a prolific scientist and teacher, with a humorous and larger-than-life personality that was infectious to every student who took his classes in photo and map interpretation and in geomorphology. Most students found him to be the best teacher they ever had. As with Cam Craddock, John had found a person who was much loved and respected by peers and students, and who was thoroughly supportive of his students.

Hoover and John visited Utah and selected a previously unmapped area in the northern Markagunt Plateau, on the southern flank of the great Oligocene and Miocene Marysvale volcanic field. The purpose for Hoover’s students was to use ash-flow tuffs, well exposed at Iron Springs, as stratigraphic time lines to help decipher the basin-range structural history of southwestern Utah. Hoover also suggested that John extend this area to the next range to the east, the Sevier Plateau, but John was able to talk him out of that. They settled on an area of about 225 square miles, whereby John determined he needed a field assistant. That spring (1963), on a visit home to see Astrid, he stopped at his alma mater and talked a junior in the Geology Department, Pete Rowley, into joining him for most of the summer. With field support from one of Hoover’s NSF and NASA (National Aeronautics and Space Administration) grants, John then bought an old, large panel truck that he gutted and fitted with beds and a propane stove. He named it *Detgaav’nok*, Danish for “the beast will probably run.” By such a vehicle, John and Pete were able to continue uninterrupted mapping by just pulling over at the end of each day (most of the area is in the National Forest) and throwing a couple cans of chili, spam, or “Chicken in Golden Gravy” into boiling water, resulting in dinner! One day, during a sudden flash flood while in a low-lying area, John maneuvered the beast off the road in heavy rain onto the top of a low hill, where they soon were surrounded by water for a half mile in most directions, and they learned how pediments formed! Of course, by mid-summer, John had become totally smitten with Linda, and Pete’s departure was hastened! (The following summer, Pete was mapping the

Sevier Plateau for Hoover.) At Texas, John supported himself as a lecturer in historical geology (1963), a Shell Oil fellowship (1963–1964), a Geological Society of America (GSA) Penrose grant (1964), and an NSF graduate fellowship (1964–1965). In 1965, the university bestowed on John the “Outstanding Graduate Student Award.” By June 1965, John had finished his dissertation and graduated; John and Linda headed off to Kent State University in Kent, Ohio. John had been hired as an assistant professor in the Department of Geology to teach courses in structural geology, geomorphology, and map interpretation, and seminars in volcanology.

With a young family, the years at Kent State were happy. Linda became a nurse, Janet and Kathy grew up, Astrid bought a home in Kent, and John worked his way up the academic ladder. Along with teaching, John established and directed the Geology Department’s summer field camp in the Black Hills of South Dakota. Through various grants to him and his graduate students, he and the family could count on returning each year to God’s Country (Utah) to extend the mapping outward from his dissertation area. He became associate professor in 1968. Pete joined him at Kent after graduation in June 1968, for the 1968–1969 academic year and the summers of 1968 and 1969, the summers supported by NSF grants to John. In 1970 and 1971–1972, John was on lecture tours as visiting scientist by the American Geological Institute and the Sigma Xi–RESA Regional Lectureship Exchange Program, respectively. In 1972, on sabbatical leave, he had a Senior Fulbright–Hays Fellowship to Victoria University in Wellington, New Zealand, to do research in volcanology. By 1972, he had already become full professor! The Utah research continued, although he added some consulting work from 1974 to 1986 on environmental problems inherent with development of oil shale, coal, and underground injection of hazardous wastes in the West, for the Environmental Protection Agency, American Petroleum Institute, and others. His Utah research fit right in with a major USGS project of mapping the entire Marysvale volcanic field and its mineral resources, led by Tom Steven, Skip Cunningham, and Pete. The USGS employed John during the summers of 1979 through 1985 and paid expenses for his students. The project was unusually prolific (more than 200 publications, including geologic maps that spanned the entire volcanic field), and John was a coauthor of dozens of them (e.g., Cunningham et al., 1983; Rowley et al., 1995, 2002) during an exciting time of mapping discoveries such as new calderas, volcanic vents, faults, ore bodies, etc. Still more fortunate, as this project was winding down, a new broader-scale USGS project, known as the Basin-and-Range–Colorado Plateau Transition project (or BARCO) was active from 1988 to 1995 and included mapping in southwestern Utah, northwestern Arizona, and southeastern Nevada. Happily, the Markagunt Plateau was included in the northern part of the BARCO area, so John and his students had continued support. Over the years, John led or co-led many field trips into his areas of study for students and professionals. On the home front, Janet and Kathy left the nest, got their educations and jobs, and were married—Janet to Jeff Simmons and Kathy to Johannes Wellen.

As were Cam Craddock and Hoover Mackin, John was dedicated to and supportive of his students, both undergraduate and graduate. Similarly, he was one of the best teachers in the Geology Department, earning the Glenn W. Frank Outstanding Teacher Award in 1985 and 1988. All his graduate students had to learn how to map as a first priority, so each was assigned part of a 7.5-minute quadrangle in the Markagunt Plateau or adjacent areas for their thesis project. John’s undergraduate geology courses were the best in the department, with a teaching style that was disciplined and well organized, included artistic drawings and a great sense of humor, yet he required extremely high standards. He was highly respected and liked. In these and his graduate courses, grading was strict and exacting, forcing students to do their best. Upon returning exams to students, he would append a typed, numbered list of common mistakes and, whenever possible, he would mark the parts of the exam with the appropriate number. When he returned drafts of his graduate students’ theses (17 of them!), they were covered with his suggestions/edits in red

ink; therefore his students learned how to write, in addition to how to do geology! His teaching extended to pre-freshman students: from 1974 to 1977, he received a Ford Foundation “Venture” grant to attract outstanding high-school seniors and juniors to Kent State by establishing honors courses in physical and historical geology that would be taught in the field, primarily at the Black Hills field camp he had founded. He also helped foster an enjoyable faculty-student setting in the department, as with his annual booklet for the Geology Spring Banquet, where he wrote creative, brief but hilarious, partly factual—partly fictional, satirical stories about the other faculty and the grad students, accompanied by his own humorous mini-artworks!

As the mapping within the Marysville project progressed through the 1970s and early 1980s, John and his students discovered old (Miocene) landslide breccia that, unlike easily identified Quaternary landslides, was not confined to the base of fault scarps or other high landforms, but instead coated parts of the top of the Markagunt Plateau. But it was not until the BARCO project that John and his students focused on this old landslide breccia, in close cooperation with USGS geologists Ed Sable, Florian Maldonado, and others. This resulted in new discoveries on its age and distribution, resulting in competing published hypotheses on where the slide came from and why it formed, of which John was coauthor (e.g., Maldonado et al., 1992). In 1993, John published a summary report that named the deposit the Markagunt Megabreccia and summarized what he knew about it. This was virtually the last word on the slide for more than a decade. It was not until 2006 that a state program of mapping regional (1:100,000-scale) quadrangles by the Utah Geological Survey reached the Markagunt Plateau. This was the Panguitch 30' × 60' quadrangle, led by Bob Biek and largely supported by the USGS STATEMAP National Cooperative Geologic Mapping Program. Bob not only compiled and had a second look at the 7.5-minute quadrangles on and adjacent to the Markagunt Plateau but also systematically mapped the areas in between that had not been done. As work progressed, the slide slowly grew in size, through several years of progress reports, from an area of about 200 square miles envisioned by John and his colleagues to what it is now, equal in area to the State of Delaware—an order of magnitude greater in size! Bob Biek collaborated with Dave Hacker, John's last graduate student and now a professor himself at Kent State University, and the two of them discovered much of what we now know about this, the Markagunt gravity slide, the largest on the land surface of the Earth. Pete also joined them. The preliminary and final Panguitch maps (e.g., Biek et al., 2015), of course, had John as a coauthor. Much of what he had interpreted in his 1993 report held up, except for its source and the sheer extent of the slide! An international, six-day field conference (a Thompson Field Forum sponsored by GSA and put together by Bob Biek) was held in September 2017, on not only the Markagunt slide but another recently found by Bob and Dave located to the east, the Sevier gravity slide. John was kept abreast of the evolution of ideas on what he himself started back in 1963!

John authored or coauthored more than 60 peer-reviewed published reports, 20 abstracts, and six technical reports. His long-term research on southwestern Utah clarified the structural foundation and history of this area, allowing later workers to make other discoveries and add details. His teaching geologic fundamentals to, and mentoring of, students resulted in new generations of professional geologists. In 1991, John took early retirement from Kent State University after Linda suffered a stroke in 1990 (while only 46 years old) and needed care. He then did something that several physicians thought impossible, to be sole caregiver for two decades to a person with severe brain damage—perhaps his proudest accomplishment in life! They returned to Cedar City, where for one year they occupied a house adjacent to that of Linda's brother. From here, John and students continued research on the Markagunt Megabreccia. In 1992, John and Linda moved to the Seattle area to be near Janet and Jeff, from where they did some traveling to Switzerland and Austria, and a cruise to Glacier Bay, Alaska. However, John also found he had prostate cancer that required lengthy treatment and surgery until he was cured. With this reprieve, in 2000, they designed and built a home on three acres in pinyon-juniper forest in New Harmony, south of Cedar City and only a few doors from the Rowleys. It had magnificent views

to the east of the Hurricane fault scarp, beyond which were spectacular domes of red Navajo Sandstone (Five Fingers of the Kolob) on the Kolob Plateau and southern Markagunt Plateau. The house design centered on a huge living room, containing a large boardroom-style table occupied by Linda's books, crossword puzzles, and quilting, that looked out at the view, most times of the year through multiple bird feeders on their wraparound wood deck that attracted a blizzard of hummingbirds. John became a gourmet cook; holidays with neighbors included Danish specialties such as roast goose and pickled herring, surrounded by small figurines of elves and gnomes. By 2007, however, health problems returned and they moved to an apartment in a retirement community in Seattle. John consoled himself with his long love of classical music. Contentment came from caring for Linda, visits from and news of his children and grandchildren, and perhaps on hearing of progress on his gravity slide.

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