

Memorial to Robert L. Nichols (1904–1995)

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Robert L. Nichols was born on June 10, 1904, and died on February 25, 1995, after several severe strokes. He received his B.S. in chemistry from Tufts College in 1926, and his M.A. and Ph.D. in geology from Harvard University in 1930 and 1940. The ten years between degrees were spent teaching at Montpelier Seminary, Milton Academy, Harvard, Radcliffe, and Tufts, and working summers for the U.S. National Park Service. He advanced at Tufts College (later University) from instructor in 1929 to full professor in 1946, and became head of the Geology Department in 1940. His major contributions to geology were in volcanology, shoreline geomorphology, and Arctic and Antarctic geology and exploration. Scores of his students might insist otherwise: that his greatest contribution was through his lecturing and teaching.



Field work in 1932–1935 on the McCarty's basalt flow, New Mexico, resulted in six papers on flow units, grooved lava, shark's-tooth projections, squeeze-ups, pressure ridges, and viscosity of lava. Unusual features on lava flows in Oregon and New Mexico produced six papers on fissure eruptions, collapse depressions, lava trees, tree rings in lava, lava fans, and velocities of lava flows. He wrote in 1984 that his "Viscosity of Lava" was probably his most significant work and had involved a new kind of thinking. Many of his lava flow features are used as examples in manuals and textbooks.

Observations in the 1930s and 1940s along the New England coast originated in eight papers on many shoreline changes, and the 1938 hurricane damage started his thinking on later work in the Arctic and Antarctic. For a short while, he became intrigued through his study of volcanic gases in the origin of Earth's atmosphere and wrote three papers on the subject. During the World War II years, he worked in Oregon and Washington for the U.S. Geological Survey and Keller-Whieldin Pottery Company, and he located deposits of high-alumina and refractory clays. This resulted in his writing three papers. Simultaneously, he created six papers on glaciological features, including the glacial history of Ameghino Glacier in Argentina. In the 1950s, he wrote nine papers on types of arctic shorelines in northern Alaska, Northwest Territories, Canada, and northwest Greenland. This last included one arduous summer man-hauling the length of Inglefield Land.

In 1946, the chance came to join the Finn Ronne Antarctic Research Expedition as senior natural scientist. The expedition was based on an island in Marguerite Bay on the west coast of Palmer (now Antarctic) Peninsula for almost two years. From this base he undertook dog-sledge and man-hauling trips—some 60 and 90 days in duration—along the east coast. He mapped new valleys and land areas southward to mountains on the Antarctic continent. This established that the Palmer Peninsula was attached and not a series of islands. All of this effort resulted in two papers and three technical reports.

Between 1957 and 1965, he returned to Antarctica six times. His 37 papers reflect his breadth of interest: polar-style beaches, saline lakes and brines demonstrating aridity, evidence of historic climatic warming, chemical stratification of Lake Vanda, coastal geomorphology of McMurdo Sound, and multiple glaciation of Wright Valley, Victoria Land. In October 1977, the Academy of Science of the Soviet Union bestowed on him the Bellinghausen Memorial Medal for his work in Antarctica. He was a recipient of the U.S. Department of Defense Congressional Medal for Antarctic Service.

Later in life, he wrote the short articles “Four Levels in Good Teaching,” “Man in My Shadow,” and “Geology as Shown on Postage Stamps.” He compiled his geology lecture notes and field trip sketches into three books for his students at Tufts: *Geologic Diagrams for General Geology*, *Field Manual for General Geology*, and *Manual for General Geology*. He was a member of a great number (15) of professional organizations, but was particularly proud of invited memberships in the Royal Geographical Society (England), the American Alpine Club, the American Polar Society, and the New York Explorer’s Club.

Robert Nichols was an old-school field geologist who used his geology hammer and hand-lens continuously and who took notes on everything. He also was a wise counselor and true friend, and he was loyal to scores of students, following their careers with enthusiastic encouragement. He continued his concern with their progress beyond college, keeping in touch often by postcards sent from faraway places. He took Tufts students with him as field assistants, even during the early years to New Mexico, but especially during the summer of 1940 to study weathering of lava flows in Mexico and climb the volcano Popocatepetl, and later to Antarctica. Four of his polar expeditions were National Science Foundation–Tufts College sponsored so he could take four and five Tufts men as assistants. On the basis of his brilliant teaching starting in 1926 and his compassion and respect for his students, he was presented the Neil A. Miner Award for Distinguished Teaching by the National Association of Geology Teachers in 1969.

Bob Nichols passed away quietly in Seminole, Florida. His wife, Frances, who he married in 1935, had died the year before. His daughter, Susan, who lived in nearby Temple Terrace, and two grandchildren, David and Carolyn, were with him.

SELECTED BIBLIOGRAPHY OF R.L. NICHOLS

- 1936 Flow-units in basalt: *Journal Geology*, v. 44, p. 617–630.
- 1939 Viscosity of lava: *Journal Geology*, v. 47, p. 290–302.
- 1939 (and A.F. Marston) Shoreline changes in Rhode Island produced by hurricane of September 21, 1938: *Geological Society of America Bulletin*, v. 50, p. 1357–1370.
- 1946 McCartys basalt flow, Valencia County, New Mexico: *Geological Society of America Bulletin*, v. 57, p. 1049–1086.
- 1951 (and M.M. Miller) Glacial geology of Ameghino Valley, Lago Argentino, Patagonia: *Geographical Review*, v. 41, p. 274–294.
- 1954 Geomorphology of Southwest Inglefield Land, Final Report, Operation Ice Cap 1953: Stanford Research Institute Project 9-98-07-002, p. 151–208.
- 1960 Geomorphology of Marguerite Bay area, Palmer Peninsula, Antarctica: *Geological Society of America Bulletin*, v. 71, p. 1421–1450.
- 1961 Characteristics of beaches formed in polar climates: *American Journal of Science*, v. 259, p. 694–708.
- 1961 Coastal geomorphology, McMurdo Sound, Antarctica: *International Geophysical Year Glaciological Report*, no. 4, p. 51–101.

- 1963 Geologic features demonstrating aridity of McMurdo Sound area, Antarctica: Problems in Palaeoclimatology, Proceedings Palaeoclimates Conference, University of Newcastle upon Tyne, p. 382–423.
- 1964 Snowdrift-ice slabs and historic Antarctic climatic warming: *Journal Glaciology*, v. 5, p. 345–351.



