

## Memorial of Benjamin M. Shaub 1893–1993

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Benjamin Martin Shaub died in Northampton, Massachusetts, on March 23, 1993, after 100 years of an extraordinary life as a mineralogist, educator, photographer, ornithologist, engineer, inventor, and much more. He was a 50-year Fellow of the Mineralogical Society of America, a Fellow of the Geological Society of America, a Fellow of the Meteorological Society of America, a charter member of the Connecticut Valley Mineral Club, and a member of a number of other professional organizations and nature and camera clubs. He wrote more than 100 publications on subjects ranging from the crystallization of beryl to the radiometric dating of uraninite to the origin of stylolites to the migration of evening grosbeaks, including books published when he was 82 (*Treasures from the Earth*) and 96 (*The Origin of Agates, Thundereggs and Other Nodular Structures*). His photographs graced the pages of many textbooks, the *Encyclopedia Britannica*, and magazines from *Geotimes* to the *Journal of Economic Entomology*.

Ben Shaub was truly a self-made man. He was born in Shrewsbury, Pennsylvania, on January 12, 1893, the son of Emma Keeney Shaub and George Henry Shaub, proud Pennsylvania Dutch farmers. His education began in a one-room grade school, and then he attended the school of telegraphy in Lebanon, Pennsylvania. His telegraphy skills helped him get a job with the Lehigh Valley Railroad, which took him to Ithaca, New York. There he was able to complete high school in three years and continue on to Cornell University. With interruptions as an instructor at the Naval Radio School at Harvard during World War I, Ben was able to work his way through college, receiving an M.E. degree from Cornell in 1923. He stayed on at Cornell teaching machine design (1923–1929) and at the same time working to obtain M.Sc. (1928) and Ph.D. (1929) degrees in economic geology.

Following a year as a mining geologist in what was then northern Rhodesia, Ben Shaub moved to Smith College in 1931, where he taught courses in mineralogy, petrography, optical mineralogy, and gemology for 27 years until his retirement in 1958. Ben was a popular teacher and directed a number of master's theses, many of which focused on the geology of Adirondack rocks and minerals. He was in perpetual motion, always on the trail of a new idea or project. His talent as an engineer, machinist, and cabinetmaker is legendary: if he needed equipment for his teaching or research he was as likely to build it as to buy it, and he would design something better than what could be purchased. He acquired an X-ray generator and



built cameras and attachments for it. He patented two of his inventions, a photometer and a drawing instrument. During World War II, Ben was a major in the Springfield, Massachusetts, Army Ordnance District, in charge of the gauge-checking laboratory.

Ben's active life seemed only to intensify upon his retirement from Smith. He vigorously pursued his scientific interests and hobbies, traveling extensively. He became a regular attendee of mineral shows, looking for specimens that might illuminate his most recent theories. His home became his laboratory, with samples, photographs, and manuscripts occupying every available surface. No visitor doubted that Ben's science was his life. I took a number of Smith College mineralogy classes to meet Ben in his home long after he had passed his 90th birth-

day. All were impressed by his knowledge of and enthusiasm for mineralogy; none guessed his age.

Ben Shaub firmly believed that the best way to learn about geological processes is to study carefully the products of those processes. No matter how popular (or unpopular) an idea might be, Ben argued, the proof is to be found in the rock—not in the number of geologists who believe in the idea. Ben's swan song on the origin of agates exemplified this approach to science. Believers in the cavity theory of agate formation will find it worth their time to consider some of Ben's textural observations on these fascinating objects.

Benjamin Shaub is survived by his wife, Mary Church Shaub, who shares a great many of Ben's interests and talents and who was an active participant in many of his projects. He is also survived by numerous minerals, photographs, and publications that will enrich the lives of many future generations.

#### SELECTED BIBLIOGRAPHY OF BENJAMIN M. SHAUB

- A unique feldspar deposit near Dekalb Junction, NY. *Economic Geology*, 24, 68–89 (1929).
- The cause of banding in fissure veins. *American Mineralogist*, 19, 393–402 (1934).
- Replacement in filled fissure veins. *American Mineralogist*, 20, 875–880 (1935).
- An inexpensive rock-slicing machine. *Economic Geology*, 30, 916–922 (1935).
- A simple method of making, mounting, and filing polished sections. *Economic Geology*, 31, 212–218 (1936).
- On the use of Polaroid for photographing large thin sections in crossed polarized light. *American Mineralogist*, 21, 384–386 (1936).
- Age of the uraninite from the Ruggles mine, Grafton Center, N.H. *Science*, 86, 156 (1937).
- The origin of cone-in-cone and its bearing on the origin of concretions and septaria. *American Journal of Science*, 34, 331–344 (1937).
- Contemporaneous crystallization of beryl and albite vs. replacement. *American Mineralogist*, 22, 1045–1051 (1937).
- Some applications of natural color photography in mineralogy. *American Mineralogist*, 23, 20–27 (1938).
- The occurrence, crystal habit and composition of the uraninite from Ruggles mine, near Grafton Center, New Hampshire. *American Mineralogist*, 23, 334–341 (1938).
- The origin of stylolites. *Journal of Sedimentary Petrology*, 9, 47–61 (1939).
- Age of the uraninite from the McLearn Pegmatite near Richville Station, St. Lawrence County, N.Y. *American Mineralogist*, 25, 480–487 (1940).
- On the origin of some pegmatites in the town of Newry, Maine. *American Mineralogist*, 25, 673–688 (1940).
- Occurrence and origin of babingtonite and other minerals from Quabbin aqueduct, Massachusetts. *American Mineralogist*, 26, 121–129 (1941).
- An unusual asymmetrically banded fissure vein. *American Mineralogist*, 27, 507–516 (1942).
- Unusual calcite and pyrite crystals from Shelburne, Mass. *Rocks and Minerals*, 3–12 (1954).
- With Barbara Schenck. Pollucite from Lithia, Mass. *American Mineralogist*, 39, 661–664 (1954).
- Magnetic anomalies of the Santa Clara, N.Y. quadrangle. New York State Science Service, SUNY, Albany. Report of Investigation, 4 (1954).
- Magnetic anomalies of the Paradox Lake, N.Y. quadrangle. New York State Science Service, SUNY, Albany. Report of Investigation, 5 (1954).
- Recent discovery of fine gem tourmaline in Maine. *Gems and Gemology*, 8, 131–136 (1955).
- Notes on the origin of some agates and their bearing on stylolite seam in petrified wood. *American Journal of Science*, 253, 117–120 (1955).
- With Dorothy Wrinch. Notes on a six-rayed diffraction star produced by magnetite enclosed in muscovite. *American Mineralogist*, 41, 944–947 (1956).
- Using the microscope for specific gravity determination of mineral grains. *American Mineralogist*, 44, 890–891 (1959).
- Dunton gem mine and its remarkable tourmalines. *Mineral Digest*, 6, 20–28 (1974).
- Treasures from the Earth: The world of rocks and minerals*, 223 p. Crown, New York (1975).
- Genesis of thundereggs, geodes and agates of igneous origin. I and II. *Lapidary Journal*, 32, 2340, 2548 (1979).
- Genesis of agates, geodes, septaria and concretions of sedimentary origin. I and II. *Lapidary Journal*, 34, 650, 860 (1980).
- The origin of agates, thundereggs and other nodular structures, 105 p. *Agate*, Northampton, Massachusetts (1989).