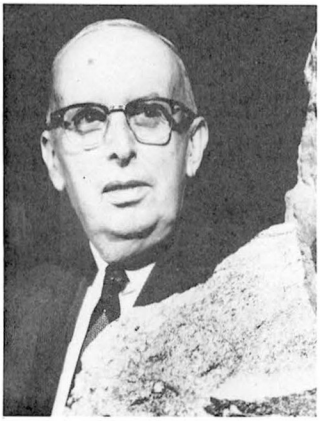
Memorial to George Edward Goodspeed 1887-1974

JULIAN D. BARKSDALE
Department of Geological Sciences, University of Washington, Seattle, Washington 98195



George Edward Goodspeed III was born April 16, 1887, in Boston, Massachusetts, the son of George Edward Goodspeed II and the former Isabel Sprague Goddard. Mrs. Goodspeed died in childbirth, and young George was raised by his maternal grandmother, Elizabeth Neal Goddard, and his mother's sister, Josephine Lee Goddard. He attended Roxbury Latin School and then, in 1906, broke the long-standing Goodspeed tradition of Harvard and banking by entering the Massachusetts Institute of Technology, resolved to study mining engineering with a geology option.

When Goodspeed graduated in 1910, he had been taught by a remarkable group of geologists: R. A. Daly, G. F. Loughlin, T. A. Jagger, Charles Warren, H. W. Shimer, and Waldemar Lindgren. B. S. Hoffman taught him copper metallurgy, and the ore dressing specialist, Robert H. Richards, was so impressed with young Goodspeed's work that he employed him as a full-time, private assistant in his large consulting practice during 1910 and 1911.

Lindgren was instrumental in Goodspeed's return to M.I.T. for graduate work, offering him a teaching assistantship for the school year 1911 to 1912. Goodspeed entered enthusiastically upon his graduate studies and completed the first year, but when the Oregon Bureau of Mines and the geology department of Oregon Agricultural College (now Oregon State University) made a combined offer of summer field work with the bureau and an academic year teaching as an instructor at Corvallis, he couldn't refuse. And thus in 1912 began Goodspeed's long association with the geology of Oregon's Wallowa Mountains.

The escape from Boston was completed and the dominance, albeit benevolent, of family tradition ended when Goodspeed married Ludella Miriam Whittlesey, an English major and teaching assistant in German at Oregon Agricultural College, on December 31, 1916, in Corvallis. Mrs. Goodspeed was an adventuresome soul and a staunch geological field companion to her husband all their long life together, until her death in 1968. Summer camp for their two daughters, Penelope and Josephine, was usually geological.

There was one nongeological interruption to the Goodspeed life. He was a First Lieutenant in the Army Reserve, Corps of Engineers, when the United States entered World War I, and he was called up for a few months' active duty in 1918. A minor physical difficulty, however, led to a medical discharge and his return from the Presidio, San Francisco, to Corvallis.

With World War I over, President Suzzallo of the University of Washington wished to rebuild his faculty in Seattle with experienced personnel. Washington's dean of the College of Science offered Goodspeed only the title of assistant professor, although he was a full professor at Oregon Agricultural College with seven years of teaching and field experience. Goodspeed's philosophy was "don't name me, just pay me," and he came to

Washington in the autumn of 1919 as an assistant professor; President Suzzallo met his demand for an associate professor's salary.

Goodspeed introduced into the teaching of mineralogy and petrology to geology and mining majors a rigor that had not been uniformly present at Washington prior to his arrival. He did not encourage graduate work beyond a few master's degrees, contending that the department was not large enough. He maintained this attitude when he became department chairman in 1936. He was content to turn out the best-trained undergraduates possible and to encourage the academically ambitious to move on to graduate schools elsewhere. Only four Ph.D. degrees in geology were given at Washington until after World War II. The four were under Goodspeed's supervision.

Evidence that the Goodspeed training was respected was the continuous flow of high-quality students that went from Washington to strong economic-petrologic graduate schools. For example, in the period from the early 1920s to World War II James Gilluly, Charles Flagler, Aaron Waters, Warren Hobbs, Ralph Roberts, and Manning William Cox went from Goodspeed's classroom to that of the distinguished petrologist Adolph Knopf at Yale. Richard E. Fuller reversed the trend; he came from Yale to Washington. Don Blackstone chose Princeton. Goodspeed shared with Dr. Charles Weaver the training of the Berkeley-bound Tom Ethrington, Sheridan Berthiaume, Lloyd Effinger, Ralph Stewart, Wyatt Durham, and Robert Coats, and of many others who went directly into industry or to the U.S. Geological Survey for successful careers on the basis of their strong bachelor-level training.

The great number of geology graduate students after World War II brought about a change in Goodspeed's policy. He sought additions to his faculty and spent much of his time supervising graduate students, but he never gave up his introductory course for geology majors until his retirement in 1957. Nor did he ever alter his exhortation to students: "Look at the evidence."

During World War II, Goodspeed again volunteered his services. In 1942 he helped set up an air-raid protection system for Seattle and, with W. L. Beuschlein, wrote a training course for air-raid wardens. This and his several other informational pamphlets on air-raid facts and fancies were published in 1942 and 1943 for local use by the Civilian Protection Division of the Seattle Municipal Defense Commission.

Professionally, Goodspeed became a participant in the search for strategic minerals of the United States Geological Survey. He examined and wrote several mimeographed reports on iron-ore deposits in Judith Basin and Meagher Counties, Montana, from 1944 to 1946, while continuing his full-time teaching and research.

Goodspeed concentrated on his teaching and economic consulting work related to mineral deposits for the first 12 years following his move west in 1912. Much of his field and laboratory work for clients enhanced his teaching, but publishing was discouraged. Fortunately one of his most productive areas of study was the Cornucopia mine, a gold property in the Wallowa Mountains of Oregon. The management of the mine encouraged his publishing anything geological that was not directly related to the gold-quartz veins themselves. His first published paper, which appeared in 1927, dealt with the metamorphism of inclusions in small porphyry dikes at Cornucopia, and it was followed by several papers on recrystallization of xenoliths and the origin of the dikes. A product of impeccable magmatist training under Daly and Lindgren, Goodspeed was by 1930 saying in print that at Cornucopia it seemed probable that most of the porphyry dikes owed their origin to the contamination of granodiorite magma or its facies rich in volatile substances by recrystallized and disintegrated xenolithic material. What appeared to be phenocrysts were not, he said, in the strict magmatic sense. They were porphyroblasts,

products of metasomatism, crystals that had their genesis in solid rock. By 1935, at a meeting of the Cordilleran Section of the Geological Society of America, Goodspeed's magmatic anchor was showing signs of slippage. He could not ignore the evidence from his studies of the metamorphic rocks of the Cornucopia mine that the quartz-porphyroblast–bearing hornfels might represent a transitional development toward more completely recrystallized rocks.

In the late summer of 1935, during the driving of a long, low-level adit, the Coulter tunnel, at Cornucopia, small angular blocks of granodioritic rock in a matrix of hornfels were encountered at a distance of some 4,300 ft from the portal. Goodspeed collected many specimens, worked diligently over the winter, and was able to present a paper giving his tentative conclusions at the April 1936 meeting of the Cordilleran Section at Pasadena. He believed that the field and petrographic evidence justified the interpretation that the granodioritic blocks were formed by recrystallization replacement as a process of additive metamorphism. He hoped that further studies in the Wallowa Mountains might give additional evidence as to whether this process of recrystallization replacement could be applied to the larger masses of granodioritic rocks. This was close to petrological heresy.

Goodspeed submitted the paper, profusely illustrated, to the *Journal of Geology* because of the glut of papers awaiting publication in the *Bulletin* of the Geological Society of America. The manuscript was returned by the editor, R. T. Chamberlin, with the comment that the reviewers recommended against publication of so outrageous an idea. There was jubilation in the University of Washington geology department when, less than two weeks after the rejection, Goodspeed received a letter from Chamberlin saying, in effect, that he would overrule his reviewers, and would Mr. Goodspeed return the manuscript immediately; the *Journal of Geology* must never be so narrow that it would refuse to publish a controversial paper. And so "Small Granodioritic Blocks Formed by Additive Metamorphism" came out in the October-November 1937 issue of the *Journal of Geology*.

When the Cornucopia mine became unprofitable, Goodspeed was free to publish on the microstructures and metallization of the gold-quartz veins, which he did in a series of papers in 1936, 1939, and 1941. His interest had, however, shifted to the broader problems of petrogenesis, and since the mine property was not abandoned (a caretaker kept the surface buildings in good repair) Cornucopia became for many more years a field station for Goodspeed's study of granitization, both before and after World War II. The erroneous idea arose among his colleagues that Goodspeed had completely abandoned the idea of orthomagmatic origins for granite. He never did, but it took a masterly presentation of his true views, at the symposium held by the Geological Society at its December 1947 meeting in Ottawa, to convince others of this. The subject "The Origin of Granite" had been selected, and the Council authorized devoting a full day to presentations and discussion. Goodspeed and H. H. Read, then president of the Geological Society of London, represented the idea of granitization. A. F. Buddington, F. F. Grout, and N. L. Bowen represented the magmatic establishment. Goodspeed's image as a petrologic wild man was definitely altered by his approach: "These are the petrographic and petrologic characteristics of a granite of magmatic origin; these are the characteristics of that of metasomatic origin." There was no doubt, however, of his bias toward the metasomatic origin. Granitization may not have been completely accepted, but it was at least respectable from this time on—so respectable that his colleagues elected him to the national presidency of the American Mineralogical Society in 1957.

Goodspeed was a Fellow of the Geological Society of America and served as chairman

of the Cordilleran Section of the Society in 1937; he was also a Fellow of the Mineralogical Society of America, a member of the American Institute of Mining and Metallurgical Engineers, honorary life member of the Northwest Scientific Association, and a founder of Klankers, a research-social faculty club.

Geology did not occupy all of Goodspeed's time. He was a member of Sigma Xi and Theta Xi, and was for over 30 years a loyal Kiwanian. Although not formally religious, he was a longtime member of the men's club of Christ Episcopal Church in Seattle and greatly enjoyed the meetings. Goodspeed also found time for a hobby begun as a schoolboy, when he built an operating model cannon and began his collection of pistols, rifles, and guns. He took particular pleasure in restoration, loaded his own ammunition, and as a member of the Seattle Rifle and Pistol Association for many years provided for the holiday table by competing in turkey shoots. One of his favorite magazines was the *National Rifleman*. He and Mrs. Goodspeed were successful deer hunters until well past his 75th birthday. They were restricted in the last few seasons to hunting the small deer of the San Juan Islands because, as Goodspeed explained, the big mule deer of the Cascades were now too heavy to retrieve and load in the car. His gun collection was willed to the Thomas Burke Memorial–Washington State Museum.

After his retirement Goodspeed came to his office daily and spent part of every summer up to and including 1973 in the field. His interest during his later years was centered on the orbicular rocks of Idaho, which were the subject of his final publication. His last few field excursions involved the collecting, in the vicinity of Salmon, Idaho, of rapakivi-type rocks of the viborgite and pyterlite varieties, upon which he was working as late as July 1974. The youth of the man's mind is exemplified by his last field trip to Idaho, at the age of 86. He needed some specimens away from the roadcuts previously available, so he borrowed two walkie-talkies and a good Polaroid camera and persuaded his daughter and her retired husband to drive him to Idaho and assist him. He remained on the highway and directed his assistants by remote control. They described the outcrop; if it sounded interesting, he directed that a picture be taken. When his assistants returned to the car he studied the color photographs, marked the places for samples, and sent the collectors back to sample and rephotograph. Two weeks after his return to Seattle he was studying the thin sections and working on a manuscript.

He died August 15, 1974, after a short illness. He is survived by his daughter Penelope (Mrs. George Poor), two sons-in-law, and ten grandchildren, including five stepgrandsons; he was very fond of all of them.

A much-beloved man is gone, but his contribution to geological teaching and research will go on with the help of a rapidly growing George Edward Goodspeed Geology Scholarship Fund at the University of Washington.

SELECTED BIBLIOGRAPHY OF G. E. GOODSPEED

1927 Effects of inclusions in small porphyry dikes at Cornucopia, Oregon: Jour. Geology, v. 35, p. 653–662.

1928 (and Weymouth, A. A.) Mineral constituents and origin of a certain kaolin deposit near Spokane, Washington: Am. Ceramic Soc. Jour., v. 11, p. 687–695.

1929 The mode of origin of a reaction porphyry dike at Cornucopia, Oregon: Jour. Geology, v. 37, p. 158–176.

1930 Some effects of the recrystallization of xenoliths at Cornucopia, Oregon: Am. Jour. Sci., v. 20, p. 143–150.

1932 (and Coombs, H. A.) Quartz-diopside-garnet veinlets: Am. Mineralogist, v. 17, p. 554–560.

1934 (and Wilson, Hewitt) Kaolin and china clay in the Pacific Northwest: Washington Univ. Eng. Expt. Sta. Bull. 76, 184 p.
1935 Tellurides at Cornucopia: Eng. and Mining Jour., v. 136, p. 72–73.
1936 Microstructures and metallization of the gold-quartz veins of Cornucopia, Oregon: Econ. Geology, v. 31, p. 398–416.
1937 Development of quartz porphyroblasts in a siliceous hornfels: Am. Mineralogist, v. 22, p. 133–138.
—— Memorial to Henry Landes: Geol. Soc. America Proc. 1936, p. 207–214.
—— (and Coombs, H. A.) Replacement breccias of the Lower Keechelus: Am. Jour. Sci., v. 34, p. 12–23.
—— Small granodioritic blocks formed by additive metamorphism: Jour. Geology, v. 45, p. 741–762.
—— Development of plagioclase porphyroblasts: Am. Mineralogist, v. 22, p. 1135–1138.
1939 Geology of the gold-quartz veins at Cornucopia (Oregon): Am. Inst. Mining and Metall. Engineers Tech. Paper 1055, 18 p.; republished in Am. Inst. Mining and Metall. Engineers, Trans. 1941, v. 144, p. 172–189.
—— Pre-Tertiary metasomatic processes in the southeastern portion of the Wallowa Mountains of Oregon: Pacific Sci. Cong., 6th, Proc., p. 399–422.
1940 Dilation and replacement dikes: Jour. Geology, v. 48, p. 175–195.
1941 (and Fuller, R. E., and Coombs, H. A.) Metasomatism of a coaly sediment into an igneous-appearing rock: Jour. Geology, v. 49, p. 190–198.
1942 Orbicular rock from Buffalo Hump, Idaho: Am. Mineralogist, v. 27, p. 34–47.
1944 (and Fuller, R. E.) Replacement aplite breccia (Cornucopia, Oregon): Jour. Geology, v. 52, p. 264–274.
1948 Xenoliths and skialiths: Am. Jour. Sci., v. 246, p. 515–525.
—— Origin of granites, *in* Gilluly, James, chmn., Origin of granite: Geol. Soc. America Mem. 28, p. 55–78.
1952 Mineralization related to granitization: Econ. Geology, v. 47, p. 146–168.
—— Replacement and rheomorphic dikes: Jour. Geology, v. 60, p. 356–363.
1953 (and Smedes, Harry) Synthesis of an incipient stage of granitization: Trend Eng., v. 5, p. 8–12.
—— Rheomorphic breccias: Am. Jour. Sci., v. 251, p. 453–469.
1955 Relict dikes and relict pseudodikes: Am. Jour. Sci., v. 253, p. 146–161.
1959 New data concerning the geology of Cornucopia, Oregon, *in* Petrologia y mineralogia: Internat. Geol. Cong., 20th, Mexico [D.F.] 1956, Trabajos, sec. 11-A, p. 75–94.
—— Some textural features of magmatic and metasomatic dikes: Am. Mineralogist, v. 44, p. 211–250.
—— Memorial to Charles Edwin Weaver: Geol. Soc. America Proc. 1958, p. 208–209.
1973 Orbicular rock occurring near Banks, Idaho: Washington Univ. Pubs. Geol. Sci., no. 3, p. 1–33.