MEMORIAL OF JOSEPH PETER CONNOLLY

L. C. GRATON, *Harvard University, Cambridge, Massachusetts.**

In a man who has risen to prominence it is especially refreshing and heartening in these days to find the steadfast exemplification of strength joined with fairness and tolerance, persuasion fortified by sincere convictions, and authority coupled with friendliness and modesty. Such a man was Joseph Peter Connolly. With simple directness and eager devotion he discharged each obligation in such manner that increasing responsibility gravitated to his willing but uncovetous hands and spontaneously elevated him to successive levels of opportunity and influence. Sterling character and the true scientist's deep appreciation of cause and effect held him beyond pressure of propaganda or lure of publicity.

Born in Cleveland, Ohio, on November 15, 1890, the only son of Peter A. and Bertha (Orwig) Connolly, he attended the public schools of his city, and in 1908 entered Oberlin. Early in his sojourn there he became deeply interested in mineralogy and geology, under the stimulating guidance of E. B. Branson. For two years after graduation in 1912 he worked in a manufacturing company. But science remained foremost in his mind, and in 1914 he entered the graduate department of the University of Missouri, again with Branson. Advanced study was combined with field investigation for the Missouri Bureau of Geology and Mines, and led to the Master's degree in June, 1915.

That autumn he began graduate work at Harvard, with emphasis in mining geology. With quiet application he perfected his background and began independent investigation, finding particular appeal in those genetic aspects of ore occurrence which are revealed by the mineralogical association. With work of such quality as to merit three scholarships, one for summer field studies, he was well advanced on a doctoral thesis when, in 1917, the call of war changed his plans. Small and slight in build, he enlisted as a private and entered the Motor Transport Corps; later he was commissioned as Second Lieutenant. Discharged from the Army as 1918 closed, he was immediately engaged as instructor in Economic Geology at Missouri.

In September, 1919, at the age of twenty-nine, Connolly was appointed Professor of Mineralogy and Petrography at South Dakota School of Mines and Technology, where his mature career was destined to center. His service at that institution naturally divides into three periods, cor-

* For assistance in the preparation of this memoir, grateful acknowledgment is due to Dr. D. H. McLaughlin, President of Homestake Mining Company, and to Dr. E. L. Tullis, Professor of Geology at South Dakota School of Mines and Technology.

responding to growing proportions of administrative responsibility superimposed on his teaching and research.

During the early years, the instruction of geological nature was organized to serve the curriculum in Mining. Connolly so built up the content and quality of his teaching as to become recognized as the most effective and popular instructor in the Faculty. But he also was enabled to devote a substantial time to research. This and his summers were actively applied to investigation of the minerals and mineral resources of the Black Hills. The famed Etta mine and other mineral occurrences of the pegmatitic class were studied and discussed. Gold being the chief mineral product of the State, he recognized the need for restudy of the deposits of that metal. He gave careful attention to the great Homestake occurrence in contorted and metamorphosed pre-Cambrian sediments. But his special purpose there was to establish a basis of comparison with the neighboring gold deposits lying as siliceous replacements of dolomitic Cambrian beds. Of the latter he made extended investigation, by careful observation and precise mapping underground, and thorough study in the laboratory. Having earlier given much consideration to limestone replacement ores belonging in the high-intensity pyrometasomatic class, he possessed good standards for establishing the intensity-characteristics of these so-called refractory ores of the Black Hills. His conclusions, accepted as a doctoral thesis at Harvard in 1927, and published as a Bulletin by his own institution, were a constructive and sound contribution which would have been of great assistance to the local mines could it have appeared when they were in their prime several decades earlier. The outstanding by-product of this work was the presentation and clear analysis of evidence that these post-Cambrian (Tertiary) ores are unrelated in age and genetic environment to the Homestake deposit, which he convincingly dated as pre-Cambrian.

The second phase of Connolly's service to his School began in 1926. Notwithstanding his unassuming nature and his devotion to his own field, clarity of mind, sound judgment and capacity to cooperate had by then become so manifest as to lead to his appointment as Vice President of the School. The added duties inevitably directed less of his attention to field work, and more of it to the institution itself. President O'Harra and he carried into effect their long-desired plan of broadening the instruction centering around geology and establishing it as a Department. In collaboration with O'Harra, he published a comprehensive summary and analysis of the mineral wealth of the Black Hills. He greatly enlarged the Museum, especially in the direction of mineralogy. He continued with his own teaching; and he took increasing part in the regional and national organizations concerned with the mineral industry. But the

JOSEPH PETER CONNOLLY
1890–1947

broad administrative duties increased. On the death of Dr. O'Harra early in 1935, Connolly became Acting President.

With his accession to Presidency of the School in August, 1935, began the third stage of his service. Although he relinquished first the direction of the Geological Department and later his title of Professor of Geology, his deep interest in the subject and in the welfare of the Department was

manifested unceasingly. He led the Badlands Expedition in 1940 under the joint auspices of the National Geographic Society and his own institution. His writings, now addressed to a more general audience than before, continued to draw upon his geological background.

At the time Connolly became responsible for the administration of the School, appropriations were at a low level in consequence of the depression. His formula for meeting this situation was characteristic: constructive improvement of the standards of the School. He broadened the existing curricula by addition of departments further emphasizing the basic sciences. He was able to attract excellent men to the faculty and to perfect the cooperation and spirit throughout. Registration began to rise. From these solid grounds, his approach to the State Legislature could comport with the man's directness and dignity. Persuasion consisted in disclosing that the needs were in balance with the opportunities. Consistent increases in appropriation and spiritual support resulted. Besides many less tangible steps of strengthening, his term as President saw a substantial building expansion, and an increase of more than fifty per cent in the student body.

Accepting the national policy of permitting qualified engineering students to continue their training during the Second World War, Connolly exerted constant effort to hold this opportunity open at South Dakota. The new problems of expansion and readjustment of the postwar period came with the onset of a progressive illness. Without excuse or complaint he resolutely persevered in full activity for two years. With the understanding support of his wife he continued to face the days with high courage to the end. He died on October 7, 1947, at the age of fifty-six.

Connolly was a fellow of the Mineralogical Society of America, the Geological Society of America and the American Association for the Advancement of Science. He held membership in the Society of Economic Geologists and the American Society of Engineering Education. In the American Institute of Mining and Metallurgical Engineers he was National Chairman of the Committee on Mining Courses, and had been Chairman of the Black Hills Section. He participated actively in the South Dakota Academy of Science. He organized in 1944 the South Dakota Chapter of the Newcomen Society and was made State Chairman. In recognition of Connolly's efficient assistance in preparation for the stratosphere balloon ascents conducted by the Army and the National Geographic Society, he was made an Honorary Life Member of that Society. He was member or honorary member of the several academic honor fraternities.

Loyal service to his State and his community equalled the high regard

and respect in which he was held by the citizenry. A member of the Natural Resources Commission and of the Committee on Economic Development of the State, he took constructive part in expanding the welfare of the commonwealth. He was member, and later honorary member, of the Black Hills Council of Boy Scouts; member of the Rapid City Chamber of Commerce and of its Committee on Mining and Lumbering; member of the Rapid City Rotary Club and its president during 1939 and 1940; an original member of the State Committee of the U. S. O. He was Vice-President of the Rapid City Concert Association, and a vestry member of Emmanuel Episcopal Church. Genuine, generous and friendly, he was affectionately known as "Joe" Connolly. His death saddened the entire community.

Dr. Connolly in 1924 married Anne Ruth Lewis, former Registrar and Secretary of the School, whose sympathetic partnership through the years was an unfailing inspiration to him. She and their two sons survive him.

BIBLIOGRAPHY

(1921) International aspects of mineral resources: *Pahasapa Quarterly*, **10,** number 3, 121–144.
(1921) (Review of book by C. C. O'Harra) The White River Badlands: *Pahasapa Quarterly*, **10,** number 4, 220–223.
(1922) Rare minerals of the Black Hills: *South Dakota Academy of Sciences, Proceedings*, **6,** 40–53.
(1924) (with others) The natural resources of South Dakota: *South Dakota Geological and Natural History Survey, circular* **16,** 6–16.
(1925) Geology and mineralogy of the Keystone district: *Black Hills Engineer*, **13,** number 1, 11–18.
(1925) The Etta mine: *Black Hills Engineer*, **13,** number 1, 18–23.
(1926) The geology class in the Badlands: *Black Hills Engineer*, **14,** number 2, 105–111.
(1926) (With C. C. O'Harra) The geology, mineralogy and scenic features of Custer State Park, South Dakota: *South Dakota School of Mines Bulletin*, number **14,** 124 pages.
(1927) The tertiary mineralization of the northern Black Hills: *South Dakota School of Mines Bulletin*, number **15,** 130 pages.
(1928) Geology of the southern Black Hills: *Black Hills Engineer*, **16,** number 1, 59–67.
(1928) Rock record shows earth's antiquity: *Sigma Tau Quarterly*, April.
(1929) Gold deposits of the Keystone district: *Black Hills Engineer*, **17,** number 1, 12–20.
(1929) Economic minerals of the pegmatites: *Black Hills Engineer*, **17,** number 1, 21–38.
(1929) (With C. C. O'Harra) Mineral wealth of the Black Hills: *South Dakota School of Mines Bulletin*, number **16,** 418 pages.
(1930) The sand-calcite crystals of Devils Hills: *Black Hills Engineer*, **18,** number 3, 264–273.
(1930) The geology of Mount Rushmore and vicinity: *Black Hills Engineer*, **18,** number 4, 355–366.
(1932) (With C. C. O'Harra and G. L. Jepson) The Black Hills: *Sixteenth International Geological Congress, United States 1933.* Guidebook **25,** Excursion C-2, 29 pages.

(1933) The mesothermal gold deposits. Part of section in the "Lindgren Volume," Ore Deposits of the Western States, published by the *American Institute of Mining and Metallurgical Engineers*, pages 573–577.

(1933) Review of textbook of geology by Longwell, Knopf, and Flint: *Journal of Geology*, **41,** 439–442.

(1933) Geologic history of Black Hills gold placers: *South Dakota State Geological Survey, Report of Investigations*, number **16,** 16 pages.

(1935) Doctor O'Harra, Scientist and Writer: *Black Hills Engineer*, **22,** number 4, 215–216.

(1936) Memorial of Cleophas C. O'Harra (1866–1935): *Geological Society of America, Proceedings*, **1935,** June, 289–296.

(1937) Turning back the pages: *Triangle Review*, **24,** 201–208.

(1939) The nature and development of the science of geology: *Black Hills Engineer*, **25,** number 1, 23–25.

(1940) Memorial of William Arthur Tarr (1881–1939); *The American Mineralogist*, **25,** number 3, 189–194.

(1940) Hunting in the land of long ago: *South Dakota Conservation Digest*, August, pages 1–3, 12.

(1941) (With E. P. Rothrock) Mineral resources of South Dakota: Pamphlet published by the *Greater South Dakota Association*, 15 pages, March. Revised edition issued by *South Dakota Department of Agriculture*, November, 1942.

(1941) A story two billion years old: *South Dakota Highway Magazine*, August, pages 8–9, 12, 16–18.

(1941) The antiquity of Mount Rushmore: *Mount Rushmore National Memorial*, published by the Commission, August, pages 20–21.

(1947) (With J. D. Bump) Big game hunting in the land of long ago: *National Geographic Magazine*, **91,** number 5, 589–605.