MEMORIAL TO WALTER LUCIUS WHITEHEAD
1891–1969

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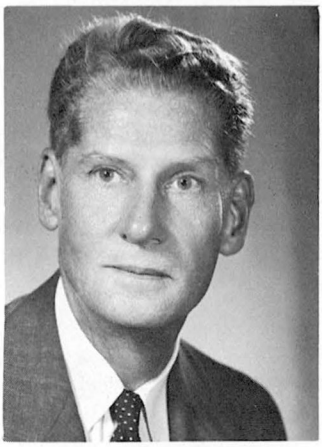

Walter Lucius Whitehead, Associate Professor Emeritus of Geology at Massachusetts Institute of Technology, died in Lexington, Massachusetts, on December 2, 1969, after a long illness. He was born in Pittsburgh, Pennsylvania, on July 5, 1891, of English and Scotch ancestry. He was the first son and fourth child of John and Mary Aitken Whitehead, having three older sisters and one younger brother. After receiving secondary education in a Boston suburban school, he entered M.I.T. in 1909, and was graduated with an S.B. degree in Mining Engineering in 1913. He continued graduate study in the same field, working with Frederic H. Lahee and Waldemar Lindgren at M.I.T. and with L. C. Graton at Harvard, and was awarded the Ph.D. degree in Geology by M.I.T. in the spring of 1918.

Immediately after commencement, he volunteered for service in the American Expeditionary Force, and served as an officer in artillery and in the Balloon Corps in France until discharged in 1919. His knowledge of French resulted in his being assigned to the artillery school at Besançon, where he became involved in reparation problems after the war ended.

After his discharge in 1919, he spent the next decade in foreign exploration as a mining geologist. This work took him the length of South America, from Chile and Argentina, through Peru and Bolivia, to Venezuela; thence to Australia, and finally to New Caledonia, where he spent several years developing the chromite deposits in the Central Highlands for French interests.

In 1923 he married Eugénie Fernande Loupias, the daughter of the Mayor of Nouméa, and a year later returned with her to a Boston suburb where they lived until her death in 1964. For forty years, from 1924 to 1963, he carried on a varied consulting practice which gradually changed from problems of ore deposits to those of mineral fuels — coal, oil and natural gas. For the first few years, he devoted all of his time to consulting, but in 1928 he was appointed Lecturer on the Geology of Coal and Petroleum at M.I.T., and for the next fifteen years, 1928-1942, he divided his geological work about equally between teaching and consulting, the latter activity being expanded to include field and laboratory work on coal, petroleum, and natural gas.

By 1940, Whitehead had become interested in the question of whether natural radioactivity in organic sediments and sedimentary rocks could bring about the formation of petroleum hydrocarbons. Early research, supported at first by

a 1946 Geological Society of America grant of $2,300 (G.S.A. Project No. 452-45, *Investigation of the Variations in Radioactivity of Certain Sedimentary Formations*), resulted in an article by Whitehead, with K. G. Bell and Clark Goodman, on *Radioactivity of Sedimentary Rocks and Associated Petroleum.* This study led to the establishment, at M.I.T., of American Petroleum Institute Research Project 43c to investigate the effect of radioactivity in the transformation of marine organic compounds into petroleum hydrocarbons. The research done on this project, which Whitehead and Clark Goodman directed throughout its existence from 1942 to 1952, was started by C.W. Sheppard and R. E. Honig, then continued and greatly expanded by I. A. Breger and a number of other M.I.T. graduate students in geology and chemistry. The results of this expanded program were published in a series of A.P.I. progress reports and more detailed articles in a number of journals (see Bibliography). The history of A.P.I. Research Project 43, *Transformation of Organic Material into Petroleum,* and a review of the findings of this ten-year program, written by K. C. Heald, appear on pages 151-166 of *Report of Progress — Fundamental Research on Occurrence and Recovery of Petroleum,* 1952-1953, published by the American Petroleum Institute. In the same report, pages 168 and 169, appears a brief review, *Notes on the Accomplishments of Project 43c,* in which Whitehead summarizes the more important research results and cites the publications in which these results are described.

As Project 43c drew to a close, Whitehead and Breger became interested in the thermal analysis of coal, and they greatly aided in organizing a conference on the origin and constitution of coal, held at the Nova Scotia Centre for the Geological Sciences, near Crystal Cliffs, a few miles north of Antigonish, in June, 1950. Their articles on this subject are listed in the Bibliography.

In 1942, when he organized A.P.I. Research Project 43c, Whitehead was promoted from Lecturer to Assistant Professor of Geology at M.I.T., and in 1947 was advanced to Associate Professor, the rank he held until retirement in 1957. Upon reaching retirement age, he was again appointed Lecturer for five years, until 1962, when he became Associate Professor Emeritus at age 70.

As a result of his studies with Frederic Lahee and Waldemar Lindgren, Whitehead strongly favored field work for geology students, and he was most at home when in the field with students and colleagues. After many field assignments with mining and petroleum companies, it was only natural, when he returned to M.I.T. in 1928, to organize courses in mapping and field geology, and these he taught for twenty years.

When M.I.T. wished to conduct its own summer field camp in 1947, Whitehead negotiated an agreement with the Premier and Minister of Mines of Nova Scotia, whereby the Nova Scotia Centre for Geological Sciences was established at Crystal Cliffs, some nine miles north of Antigonish. Here, Whitehead organized and directed the M.I.T. Summer School of Geology for a decade, from 1948 to 1957, and, with Assistant Director Roland D. Parks, supervised the field training of more than 300 students. These students came from 5 Canadian, 17 U.S., and 11 foreign colleges, and from 34 of the 50 states of the U.S. Many

who got their first field training at Crystal Cliffs are now prominent in the geological profession.

After retirement in 1957, Whitehead relinquished his responsibilities at the Centre but continued, for several more years, to act as geological consultant to the Nova Scotia Research Foundation and the Department of Mines, organizations with which he had worked closely for almost two decades. In recognition of these services to Nova Scotia, and others to St. Francis Xavier University in Antigonish, that institution awarded him an honorary Doctor of Science degree in 1957. For the next 6 years, he returned to the University each fall as Visiting Professor of Geology and only reluctantly terminated this happy arrangement when failing health made it inadvisable for him to drive the nine hundred miles from Cambridge.

Whitehead's chief interests were teaching and research supervision. He had a phenomenal memory — he seemed never to have forgotten anything geological he had ever read, and he read omnivorously, so that he kept abreast of latest research and passed this information on to his students. During his 35 years of teaching at M.I.T., he supervised 80 theses, by far the most of any of his contemporary departmental colleagues, and this happened because students looking for a thesis topic could always get several good suggestions from him. They were also attracted to him because he was an unusually interesting conversationalist on a broad range of subjects.

Widely travelled throughout the world, in the cities as well as in the hinterlands; an omnivorous reader of biography and history, as well as of science and technology; a keen observer of nature, with a deep sensitivity to color; a creditable painter in oils and water colors; and a person always interested in people and their culture; he brought a wide range of skills and interests to his students in both lectures and seminar discussions. He was at his best, however, when the group was small, and discussions held under these circumstances are the ones most likely to be remembered by his students and colleagues.

Whitehead contributed to geology in four important ways: as a successful consultant to a wide variety of clients; as supervisor of imaginative laboratory research on organic sediments and sedimentary rocks; as teacher and mentor of a host of students who received their first introduction to field work under his direction; and as thesis supervisor of an unusually large number of students, many of whom now hold positions of considerable responsibility in the geological profession. In recognition of these contributions, and as an indication of their esteem for him as teacher and friend, more than one hundred of his students have thus far contributed to a memorial fund, established with his knowledge, to perpetuate his name at M.I.T.

Whitehead was elected a Fellow of The Geological Society of America in December, 1933, and was a long-time member of the American Institute of Mining and Metallurgical Engineers and of the American Association of Petroleum Geologists. He leaves an older sister, Florence Whitehead of Cambridge, and his younger brother, Gilbert Whitehead, a retired mining engineer of Prescott, Arizona.

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