ografía y Mineralogía, naming Pardillo as head. The Section developed rapidly until it was transformed into the Department of Crystallography, and Pardillo was named Member of Number of the Higher Council for Scientific Research. Among other honors, Pardillo held the Medal of the Order of Alfonso el Sabio for outstanding research, and a few months after his death, the Mineralogical Society of America was electing him Fellow (November 29, 1955).

Don Francisco was a lover of the method, the method that allowed him, even in the middle of his multiple administrative duties, to do research, to write, and to translate books. An indication of his activities is provided by the list of his publications.[1] But the list is only a cold reflection of the man that established modern crystallography in Spain.

[1] To obtain a copy of the complete bibliography of Pardillo's writings, order NAPS Document Number 02027. The present address is Microfiche Publications, Division of Microfiche Systems Corporation, 305 East 46th Street, New York, N. Y. 10017. The present price is $1.50 for microfiche or $5.00 for photocopies, payable in advance. Please check the most recent issue of this journal for the latest address and prices.

A selected bibliography of Pardillo's works has been published by José Amorós in "Don Francisco Pardillo-Vaquer," *Publicaciones del Departmento de Cristalografía y Mineralogía*, **2**, 79–83 (1955).

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Memorial of Robert L. Stone
August 16, 1912—October 3, 1969

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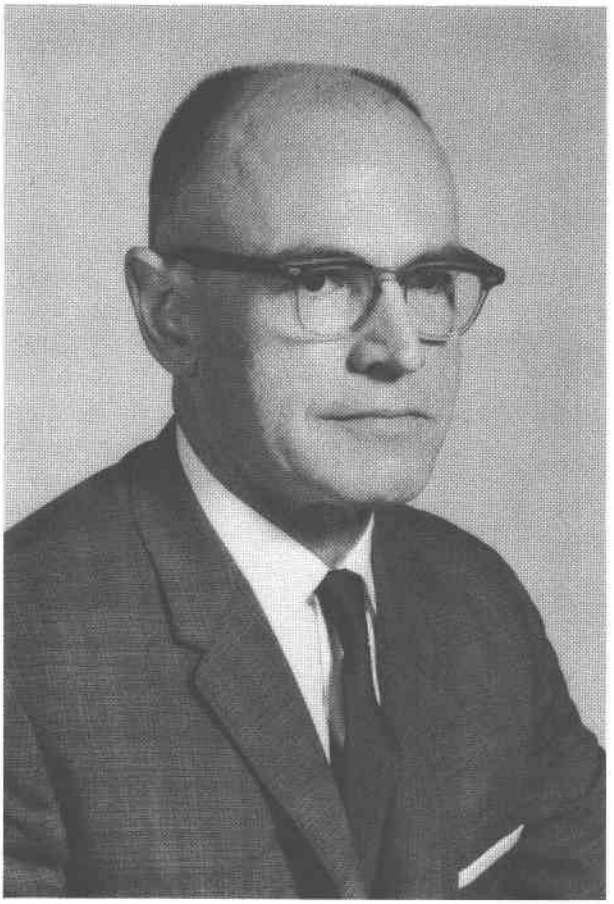
Dr. Robert L. Stone died on Friday, October 3, 1969, after being incapacitated for several years by emphysema. Even when it was necessary to have oxygen near at hand, his inquisitive mind did not slow down. During these last years he catalogued and photographed the wild flowers of Central Texas.

Bob Stone was born on August 16, 1912, in Huron County, Ohio. He attended elementary school in Florence, Ohio, and high school in Norwalk, Ohio, where he was a member of the National Honor Society and the National Language Fraternity (Sigma Pi Alpha). The Missouri School of Mines, Rolla, Missouri, granted him a B.S. in Ceramic Engineering in 1934. Along with this he earned Tau Beta Pi and Keramos. He earned an M.S. in Ceramic Engineering at North Carolina State College in 1936 where he was an instructor until 1939, Assistant Professor and Associate Professor until 1945. During this period he was elected to Sigma Xi and had several industrial engineering experiences. He held various war-time advisory positions from 1941 until 1946. In North Carolina Bob married Addie Mae Goldston in May 1937, who, along with his two children, lives in Austin, Texas.

From 1946 to 1951 Bob was at Ohio State University where he took a Ph.D. During this period he was Technical Secretary and Editor of *The Journal,* American Ceramic Society, and Research Engineer at the Experiment Station. It was here that his work first attracted my attention. His doctoral thesis dealt, in part, with dynamic atmosphere control in differential thermal analysis, a subject on which I was working; Bob had devised a flow-thru sample-gas pressure control technique which allowed the use of the van't Hoff relation and has become a milestone in thermal analysis.

Our association began when he joined the Chemical Engineering Faculty of the University of Texas in 1951, where he rose to Professor and Chairman of Ceramic Engineering. It was during this period that he developed the two techniques and the instrumentation which constitute his best known contributions. These are the temperature gradient method for testing ceramic materials, and the first reliable, commercially available differential thermal analysis



apparatus with dynamic atmosphere control. His temperature gradient furnaces, in which the best firing temperature for a ceramic body or glaze can be determined from one test bar, are found all over the world. His differential thermal analysis apparatus with its sensitive ring thermocouples is common in most laboratories concerned with mineral comparison.

In 1957 Bob began to devote half of his time to building thermal and analytical apparatus for other people, and in 1959 he organized the Robert L. Stone Company of which he was owner and president. He continued until his failing health forced him to sell the company to Tracor in 1966. He was a vice president of Tracor at the time of his death.

Bob was a fellow of the Mineralogical Society of America and of the American Ceramic Society. He was a registered engineer in North Carolina and Texas. On February 25, 1969, he received the Mettler Award for outstanding contributions to thermal analysis.

In a career as an educator, engineer, manufacturer, instrument designer, and research scientist he found time to write more than thirty papers and bulletins and to obtain at least six definitive patents. The following is a partial list of his publications and patents.

Selected Publications of R. L. Stone

(1937) The development of pyrophyllite refractories, and refractory cements. *North Carolina State College Engineering Experiment Station, Bulletin No. 12* (with A. F. Greaves-Walker, C. W. Owen, and T. L. Hurst).

(1938) The development of forsterite refractories employing North Carolina dunite. *North Carolina State College Engineering Experiment Station, Bulletin No. 16* (with A. F. Greaves-Walker).

(1938) *Ceramic Raw Materials.* North Carolina State College Extension Division.

(1938) *Setting Heavy Clay Products.* North Carolina State College Extension Division.

(1939) *Pyrometry.* North Carolina State College Extension Division.

(1939) The thermo-chemistry of North Carolina dunite in the manufacture of forsterite refractories. *Journal American Ceramic Society,* **22,** No. 10, 342.

(1940) *Firing Fundamentals and Practice.* North Carolina State College (with A. F. Greaves-Walker).

(1943) Effect of evacuation on ground coat enamels. *Bulletin American Ceramic Society,* **26,** No. 10, 342.

(1943) Ceramic dielectric and insulator materials for radio and radar. *North Carolina State College Engineering Experiment Station, Bulletin No. 25.*

(1945) An investigation of factors affecting the firing shrinkage of dry-pressed steatite bodies. *North Carolina State College Engineering Experiment Station, Bulletin No. 27.*

(1945) An investigation of binders and the development of systems of shrinkage control of dry pressed steatite bodies. *North Carolina State College Experiment Station, Bulletin No. 28.*

(1945) Part I. The development of a system of shrinkage control for extruded steatite bodies. Part II. The development of special bodies for production of electron tube spacers. *North Carolina State College Engineering Experiment Station, Bulletin No. 29.*

(1951) Differential thermal analysis of clay minerals under controlled thermo-dynamic conditions. *Ohio State University Engineering Experiment Station, Bulletin No. 146.*

(1952) Apparatus for differential thermal analysis under controlled partial pressures of H_2O, CO_2, or other gases. *Journal American Ceramic Society,* **35,** No. 3, 76–82.

(1952) Differential thermal analysis of kaolin group minerals under controlled partial pressures of H_2O. *Journal American Ceramic Society,* **35,** No. 4, 90–99.

(1953) Temperature gradient method of determining firing range of ceramic bodies. *Journal American Ceramic Society,* **36,** No. 4, 140–142.

(1954) Interface reactions between glazes and the crystal phases in a high-talc tile body. *Journal American Ceramic Society,* **37,** No. 2, 33–38.

(1954) Thermal analysis of magnesite at CO_2 pressure up to six atmospheres. *Journal American Ceramic Society,* **37,** No. 27, 46–47.

(1954) Three-sheet minerals in clays. *Bulletin American Ceramic Society,* **33,** No. 2, 51–54.

(1954) Preliminary study of the effects of water vapor pressure on thermograms of kaolinitic soils. *Proceedings of the Second National Conference on Clays and Clay Minerals,* National Research Council (with D. J. Weiss).

(1955) DTA of kaolinite and montmorillonite under water vapor pressures up to six atmospheres. *Proceedings of the Third National Conference on Clays and Clay Minerals,* National Research Council (with R. A. Rowland).

(1956) Physical properties of an illitic clay due to specific base-exchange cations. *Journal American Ceramic Society,* **39,** 398–402 (with R. L. Eschenburg and E. J. Weiss).

(1956) Limestone-marl mixtures for extruded and dry pressed building brick. *Journal American Ceramic Society,* **39,** 288 (with Paul D. Martino).

(1957) Determinative tests of aid in design of driers and kilns. *American Ceramic Society Bulletin,* **36,** 1–5.

(1957) Laboratory tests on the oxidation characteristics of a Texas shale. *American Ceramic Society Bulletin,* **36,** 172–173.

(1957) Differential thermal analysis—new technique for testing silica-alumina catalysts. *Analytical Chemistry,* **29,** 1273–1277 (with H. F. Rase).

(1957) Effects of water vapor pressure on thermograms of aluminum hydroxides. *American Ceramic Society Annual Meeting.*

(1958) A study of the christobalite inversion. Presented at the meeting of the American Ceramic Society (with J. N. Dexter and E. J. Weiss).

(1960) Differential thermal analysis by the dynamic gas technique. *Analytical Chemistry,* **32,** 1582.

Patents

U.S. Patent No. 2,144,858, Olivine Refractories, issued April 25, 1939 (with A. F. Greaves-Walker).

U.S. Patent No. 2,825,222, Device for Temperature Gradient Method of Sample Testing, issued 1958.

U.S. Patent No. 2,365,522, Pyrophyllite Refractories, issued November 28, 1944 (with A. F. Greaves-Walker).

U.S. Patent No. 2,524,739, Plastic Bonded Ceramic Articles, issued October 3, 1950.

U.S. Patent No. 2,947,163, Material Testing Apparatus and Method, issued 1960.

U.S. Patent No. 3,298,220, Ring Thermocouple for DTA, issued 1966.