Memorial of Roger G.J. Strens May 11, 1938-January 11, 1980

ROBERT FREER

Grant Institute of Geology, University of Edinburgh West Mains Road, Edinburgh, EH9 3JW

Roger Strens, a Senior Research Officer in the Department of Geophysics and Planetary Physics of the University of Newcastle upon Tyne, died suddenly on January 11, 1980. As he had generally been in good health, his death, which resulted from an unusual combination of circumstances, was a devastating blow to his family, friends and colleagues.

He was born on May 11, 1938 in Brussels, Belgium, but within a few years his family moved to England, and he attended several schools in and around the London area. In 1956 he entered the De-



partment of Geology at Nottingham University, obtaining a B.Sc. in 1959, and following graduate work with Dr. R. J. Firman, a Ph.D. in 1962. During his years at Nottingham he was a keen field geologist, but became increasingly interested in mineralogy, and made a detailed study of the mineralization of the Borrowdale-Honister area of the English Lake District as part of his thesis work.

The academic year of 1962-63 was spent as a Research Fellow in the Department of Geology, University of Texas at Austin, and the following year as a Research Geologist in the Department of Geology and Geophysics, University of California at Berkeley. In both positions he gained experience in experimental mineralogy and petrology, working on the synthesis and properties of Ca₃V₂Si₃O₁₂ (goldmanite) and several members of the epidote family.

Roger returned to England in 1964 to take up a Research Fellowship in the Department of Mineralogy and Petrology of the University of Cambridge. In a highly productive period of two years he published several papers on stability, electronic spectra, and cation ordering in a number of minerals. Some of the spectroscopic studies were made in collaboration with Roger Burns, and also G. M. Bancroft and A. G. Maddock. The next move took Dr. Strens to the Department of Earth Sciences at Leeds University, where he was Lecturer in Geochemistry, replacing Professor P. G. Harris for one year. In 1967 he accepted an appointment at the University of Newcastle upon Tyne, as a Cuest Member of Staff in the Department of Geophysics and Planetary Physics, and two years later obtained the post of Senior Research Officer, which he held until the time of his death. During a period of twelve years he developed a distinctive brand of mineralogical research in a Department dominated by solid earth geophysicists. Despite being surrounded by a number of large, estab-

Publications of Roger G.J. Strens

- Some relationships between members of the epidote group. Nature, 198, 80-81.

 Pyromorphite as a primary phase. Mineral. Mag., 33, 722-723.
- Magnetite colloid in ore mineralogy. Mineral. Mag., 33, 815-817. Epidotes of the Borrowdale Volcanic rocks of central Borrowdale. Mineral. Mag., 33, 868-886. Synthesis and properties of piemontite. Nature, 201, 175-176.
- Stability and relations of the Al-Fe epidotes. Mineral. Mag., 35, 464-475.

 The graphite deposit of Seathwaite in Borrowdale, Cumberland. Geol. Mag., 102, 393-406.

 Instability of the garnet Ca₃Mn₂Si₃O₁₂, and the substitution Mn³⁺ Al. Mineral. Mag., 35, 547-550.

 Synthesis and properties of calcium vanadium garnet (goldmanite).
- The axial-ratio inversion effect in Jahn-Teller distorted ML $_6$ octahedra in the epidote and perovskite structures. Mineral. Mag., $\underline{35}$, 777-781.

Am. Mineral., 50, 260.

Properties of the Al-Fe-Mn epidotes. Mineral. Mag., 35, 928-944. Infrared study of cation ordering and clustering in some (Fe,Mg) amphibole solid solutions. Chem. Commun., 519-520.

Pressure-induced spin-pairing in gillespite, $BaFe^{2+}Si_4O_{10}$. Chem. Commun. 777-778.

(with R.G. Burns) Infrared study of hydroxyl bands in clinoamphiboles. Science, <u>153</u>, 890-892.

(with B.W. Evans) Zinc mica from Franklin Furnace, New Jersey. Nature, 211, 619.

(with G.M. Bancroft, A.G. Maddock, and R.G. Burns). Cation distribution in anthophyllite from Mössbauer and infra-red spectroscopy. Nature, <u>212</u>, 913-915.

(with R.G. Burns) Structural interpretation of polarized absorption spectra of the Al-Fe-Mn-Cr epidotes. Mineral Mag., 36, 204-226. Coexistence of "incompatible" ions and concentration processes in two mineral systems. Mineral. Mag., 36, 459-461.
Symmetry-entropy-volume relations in polymorphism. Mineral. Mag.,

<u>36</u>, 565-577.

(with B.W. Robinson) Genesis of concordant deposits of base-metal sulphides: an experimental approach. Nature, <u>217</u>, 535-536. Stability of some Al₂SiO₅ solid solutions. Mineral. Mag., <u>36</u>, 839-849.

Reconnaissance of the prehnite stability field. Mineral. Mag., 36, 864-867.

(with D.W. Robbins) Polarization dependence and oscillator strengths of metal-metal charge transfer bands in iron (II, III) silicate minerals. Chem. Commun., 508-509.

- The nature and geophysical importance of spin-pairing in minerals of iron (II). In S.K. Runcorn, Ed., Application of Modern Physics to the Earth and Planetary Interiors, p. 213-220. Wiley, London and New York.
- Application of geothermometry and geobarometry to the determination of the palaeogeothermal gradient and palaeogravity. In S.K. Runcorn, Ed., Palaeogeophysics, p. 377-384. Academic Press, London and New York. (with A.M. Pritchard) Application of Mössbauer determination of cation ordering in a crossite to geothermometry. Am. Mineral, 55, 306-307.

(with B.J. Wood) Visible-region absorption spectra of (Fe, Mg) pyroxenes and amphiboles. Am. Mineral., <u>55</u>, 313-314. (with B.J. Wood) Calculations of site-preference energies and cation distributions in (Fe, Mg) amphiboles and pyroxenes from structure data. Am. Mineral., 55, 316.

- (with B.J. Wood) The orthopyroxene geobarometer. Earth Planet.
 Sci. Lett., 11, 1-6.
 (with B.J. Wood) The crystallization of lunar basalts. Phys.
 Earth Planet. Interiors, 4, 222-225.
- 1972 (with D.W. Robbins) Charge-transfer in ferromagnesian silicates: the polarized electronic spectra of trioctahedral micas.

 Mineral. Mag., 38, 551-563.

(with H.G. Tolland) Electrical conduction in physical mixtures and chemical mixtures. Application to planetary mantles. Phys. Earth Planet. Interiors, 5, 380-386.

(with B.J. Wood) Calculation of crystal-field splittings in distorted coordination polyhedra: spectra and thermodynamic properties of minerals. Mineral. Mag., 38, 909-917.

- 1973 (with M.J.S. Johnston) Electrical conductivity of molten Fe-Ni-S-C core mix. Phys. Earth Planet. Interiors, 7, 217-218.
- 1974 (Infrared spectra of) the common chain, ribbon and ring silicates.
 In V.C. Farmer, Ed., The Infrared Spectra of Minerals, p. 305-330.
 Mineralogical Society of Great Britain, London.
- 1976 (with M.J. Dempsey) Modelling crystal structures. In R.G.J. Strens, Ed., The Physics and Chemistry of Minerals and Rocks, p. 443-458.
 Wiley, London and New York.

Behaviour of iron compounds at high pressure, and the stability of Fe₂O in planetary mantles. In R.G.J. Strens, Ed., The Physics and Chemistry of Minerals and Rocks, p. 545-554. Wiley, London and New York.

(with G. Smith) Intervalence-transfer absorption in some silicate, oxide and phosphate minerals. In R.G.J. Strens, Ed., The Physics and Chemistry of Minerals and Rocks, p. 583-612. Wiley, London and New York.

The Physics and Chemistry of Minerals and Rocks. R.G.J. Strens, Editor. Wiley, London and New York, 697p.

- 1978 (with R. Freer) The physical basis of mineral optics: I Classical Theory. Mineral. Mag., 42, 19–30.
- 1979 Determining the optical constants of opaque minerals. Bull. Mineral., 102, 308-313.

(with B.J. Wood) Diffuse reflectance spectra and optical properties of some iron and titanium oxides and oxyhydroxides. Mineral. Mag., 43, 347-354.

(with B.J. Wood) Diffuse reflectance spectra and optical properties of some sulphides and related minerals. Mineral. Mag., 43, 509-518.

1981 (with P.M. Bell and H.K. Mao) Quantitative spectra and optics of some meteoritic and terrestrial titanian clinopyroxenes. (submitted to Am. Mineral.)