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Memorial of Frank Cuttitta
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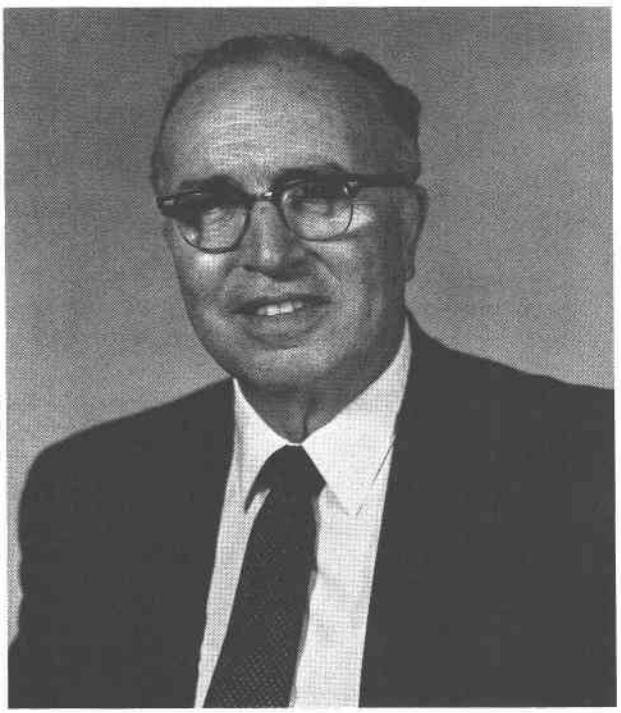

Frank Cuttitta, 62, research chemist for the U.S. Geological Survey, died suddenly on November 4, 1974, of a massive coronary while seemingly on the way to recovery from a minor stroke. Frank was born in Brooklyn, New York, and obtained a B.S. in Chemistry from Brooklyn College in 1937. After a tour of duty with the Post Office Department and a four-year hitch with the Army during World War II, he received an M.S. in Chemistry from the University of Maryland in 1948. He joined the U.S. Geological Survey in 1948 and immediately embarked on a study of analytical techniques and methodology associated with the Atomic Energy Commission's national search for uranium sources. When the uranium program was de-emphasized in 1957, Frank, with his sense of awareness for future trends in scientific research, devoted his efforts to problems in geochronology and nuclear chemistry.

With the advent of the space program Frank turned his research efforts to the analysis of extraterrestrial materials. These studies, on behalf of the National Aeronautics and Space Administration, led to many investigations of impact metamorphism, cratering and volcanic phenomena, and the geochemistry of magmatic differentiation. His achievements and enthusiasm for space exploration resulted in his being detailed to NASA headquarters where he helped to initiate, direct, and monitor fundamental planetological investigations between 1968 and 1972. During this period and continuing to the time of his death, Frank was active as an investigator for the Apollo program. His many contributions to the analysis of lunar materials are evident from his extensive bibliography, which includes more than 100 scientific reports.

He was a Fellow of the Washington Academy of Sciences and of the American Association for the Advancement of Science. He also held memberships in the Geochemical Society, the Mineralogical Society of America, the American Chemical Society, and the Meteoritical Society. He lectured at the George Washington University, American University, and the Universities of Florence, Rome, Palermo, and Jeddah. In 1973, he was co-director of an International School of Earth Sciences held in Erice, Sicily, devoted to Volcanism on Earth and in the Solar System. In 1974, he served as a consultant to the government of Saudi Arabia. He received a Presidential Citation in 1964 for his contributions to X-ray spectroscopy, and the Wm. F. Meggars award in 1969 for the best paper to appear in the *Journal of Applied Spectroscopy* that year. In recognition of his extensive contributions to geochemistry and the analytical chemistry of extraterrestrial materials, he was awarded the coveted degree of Doctor of Philosophy in Geological Sciences, Laura Honoris Causa, by the University of Palermo, Sicily, in 1974.

Frank will be sorely missed by his colleagues. His great personal concern for his associates extended to their respective families, and he always showed a sincere, compassionate interest for the scholastic progress and career growth of their sons and daughters in a paternalistic, almost

"godfatherly" way. He was never too busy to give advice and guidance whether the problem was of a scientific or personal nature.

Frank is survived by his wife, Gisella, more familiarly known as Jean, who in the last few years accompanied him on his many official travels to both foreign and domestic scientific sessions. Frank also leaves his mother, Mrs. Rose Cuttitta, and a sister Mrs. Millie Schiaffino, both of Brooklyn, New York; a son, Frank, Jr.; a daughter, Mrs. Rosanne Maidens; and three grandchildren. His colleagues will always remember Frank as one of the staunchest members of the old U.S. Geological Survey Laboratory's "Gun Factory Crew."

Selected Publications of Frank Cuttitta

1953 A photometric method for the estimation of the oil yield of oil shale. *U.S. Geol. Surv. Bull.* **992**, 15–31.
A volumetric method for the estimation of the oil yield of oil shale. *U.S. Geol. Surv. Bull.* **992**, 33–37.

1954 (with Clifford Frondel) Studies of uranium minerals (XIV): Renardite. *Am. Mineral.* **39**, 448–451.
(with J.W. Frondel) Studies of uranium minerals (XVI): An alteration product of ianthinite. *Am. Mineral.* **39**, 1018–1020.

1955 (with F.S. Grimaldi and B. Ingram) Determination of small and large amounts of fluorine in rocks. *Anal. Chem.* **27**, 918–921.

1957 (with Z.S. Altschuler and E.R. Jaffe) The aluminum phosphate zone of the Bone Valley Formation and its uranium deposits. *U.S. Geol. Surv. Prof. Pap.* **300**, 495–504.
(with Roy Clarke) Determination of thallium by a dithizone mixed-color method. *Anal. Chim. Acta*, **19**, 555–562.
(with L.R. Stieff and P.J. Kuroda) Comparison of the isotopic abundance of U^{235} and U^{238} and the radium activity ratios in Colorado Plateau uranium area. *Geochim. Cosmochim. Acta*, **11**, 189–193.

1958 (with E.C. Walker and F.E. Senftle) Some natural variations in the relative abundance of copper isotopes. *Geochim. Cosmochim. Acta*, **15**, 183–194.

1959 (with Robert Meyrowitz and Nelson Hickling) A new diluent for bromoform in heavy liquid separation of minerals. *Am. Mineral.* **44**, 884–885.
(with C.E. White) Spectrophotometric study of the magnesium-bissalicylidene-ethylenediamine system. *Anal. Chem.* **31**, 2087–2090.

1960 (and Robert Meyrowitz and Betsy Levin) Dimethyl sulfoxide, a new diluent for methylene iodide heavy liquid. *Am. Mineral.* **45**, 726–728.
(with J.J. Warr) The determination of lead in iron-bearing materials. *U.S. Geol. Surv. Prof. Pap.* **400–B**, B483–B484.
(with J.J. Warr) The determination of lead in pyrites. *U.S. Geol. Surv. Prof. Pap.* **400-B**, B485–B486.
(with J.J. Warr) Determination of lead in zircon with dithizone. *U.S. Geol. Surv. Prof. Pap.* **400-B**, B486–487.
(and J.J. Warr) Preparation of lead iodide for mass spectrometry. *U.S. Geol. Surv. Prof. Pap.* **400–B**, B487–B488.
Determination of small quantities of oxygen adsorbed on anatase. *U.S. Geol. Surv. Prof. Pap.* **400–B**, B488–B490.
(and F.E. Senftle and E.C. Walker) Preliminary tests of isotopic fractionation of copper adsorbed on quartz and sphalerite. *U.S. Geol. Surv. Prof. Pap.* **400–B**, B491-B493.
(with Robert Meyrowitz and Betsy Levin) N, N'-dimethylformamide, a new diluent for methylene iodide heavy liquid. *Am. Mineral.* **45**, 1278–1280.

1961 (with Irving May) Completeness of precipitation of selenium as the element. *U.S. Geol. Surv. Prof. Pap.* **424–D**, D394–D395.
(and J.J. Warr) Use of bathophenanthroline for determining traces of iron in zircon. *U.S. Geol. Surv. Prof. Pap.* **424–C**, C383–C384.
Dithizone mixed-color method for determining small amounts of thallium in manganese ores. *U.S. Geol. Surv. Prof. Pap.* **424–C**, C384–C385.
(with N. Hickling and R. Meyrowitz) N, N'-dimethylformamide, a new diluent for bromoform used as a heavy liquid. *Am. Mineral.* **46**, 1502–1503.

1962 (with M.K. Carron) Determination of silica in tektites and similar glasses by volatilization. *U.S. Geol. Surv. Prof. Pap.* **450–B**, B78–B79.
(with M. D. Crittenden, H. J. Rose, Jr., and Michael Fleischer) Studies on manganese oxide minerals. VI. Thallium in some manganese oxides. *Am. Mineral.* **47**, 1461–1467.

1963 (with A.N. Thorpe and F.E. Senftle) Magnetic and chemical investigations of iron in tektites. *Nature*, **197**, 836–840.
(with Titus Pankey and Frank Senftle) Antiferromagnetism of $UO_2 \cdot 2H_2O$. *J. Chem. Phys.*, **39**, 1702– 1706.

1964 (with H.J. Rose, Jr., M.K. Carron, and R. Brown) Semimicro X-ray fluorescence analysis of tektites using 50-milligram samples. *U.S. Geol. Surv. Prof. Pap.* **475–D**, D171-D173.

1965 (with H.J. Rose, Jr., and R.R. Larson) Use of X-ray fluorescence in determination of selected major constituents in silicates. *U.S. Geol. Surv. Prof. Pap.* **525–B**, B155–B159.

1966 (with A.T. Miesch and E.C.T. Chao) Multivariate analysis of geochemical data on tektites. *J. Geol.* **74**, 673–691.

1967 (and R.S. Clarke, Jr., M.K. Carron, and C.S. Annell) Martha's Vineyard and selected Georgia tektites: New chemical data. *J. Geophys. Res.* **72**, 1343–1349.
(with Z. S. Altschuler and S. Berman) Rare earths in phosphorite: Geochemistry and potential recovery. *U.S. Geol. Surv. Prof. Pap.* **575–B**, B1–B9.

1968 (with Irving May) New instrumental techniques in geochemical analysis. In, *Researches in Geochemistry*, Vol. **2**, chapter 5, p. 112–142. John Wiley and Sons, New York.
(and H. J. Rose, Jr.) Slope-ratio technique for the determination of trace elements by X-ray spectroscopy: A new approach to matrix problems. *Appl. Spec.* **22**, 321–324.

(with O.B. Raup, A.J. Gude, III, E.J. Dwornik, and H.J. Rose, Jr.) Braitschite, a new hydrous calcium rare-earth borate mineral from the Paradox Basin, Grand County, Utah. *Am. Mineral.* **53,** 1081–1095.
(with H.J. Rose,Jr.) X-ray fluorescence analysis of individual rare earths in complex minerals. *Appl. Spec.* **22,** 426–430.
(with H.J. Rose, Jr.) X-ray fluorescence spectroscopy in the analysis of ores, minerals, and waters. In, *Advances in X-ray Analysis,* **11,** 23–29. Plenum Press, New York.
(and H.J. Rose, Jr.) Micro X-ray fluorescence spectroscopy: Selected geochemical applications. *Appl. Spec.* **22,** 423–426.

1970 (with H.J. Rose, Jr., E.J. Dwornik, M.K. Carron, R.P. Christian, J.R. Lindsay, D.T. Ligon, Jr., and R.R. Larson) Semimicro chemical and X-ray fluorescence analysis of lunar samples. *Science,* **167,** 520–521.
(with H.J. Rose, Jr., E.J. Dwornik, M.K. Carron, R.P. Christian, J.R. Lindsay, D.T. Ligon, Jr., and R.R. Larson) Semimicro X-ray fluorescence analysis of lunar samples. *Proc. First Lunar Sci. Conf., Geochim. Cosmochim. Acta, Suppl. 1,* **2,** 1493–1497, Pergamon.

1971 (with P.A. Baedecker, H.J. Rose, Jr., R. Schaudy, J.T. Wasson) On the origin of lunar soil 12033. *Earth Planet. Sci. Lett.* **10,** 361–364.
(with H.J. Rose, Jr., C.S. Annell, J.K. Carron, R.P. Christian, E.J. Dwornik, L.P. Greenland, A.W. Helz, and D.T. Ligon, Jr.) Elemental composition of some Apollo 12 lunar rocks and soils. *Proc. Second Lunar Sci. Conf., Geochim. Cosmochim. Acta, Suppl. 2,* **2,** 1217–1229, M.I.T. Press.

1972 (and M.K. Carron, and C.S. Annell) New data on selected Ivory Coast tektites. *Geochim. Cosmochim. Acta,* **36,** 1297–1309.
(with H.J. Rose, Jr., C.S. Annell, M.K. Carron, R.P. Christian, E.J. Dwornik, L.P. Greenland, and D.T. Ligon, Jr.) Compositional data for twenty-one Fra Mauro Materials. *Proc. Third Lunar Sci. Conf., Geochim. Cosmochim. Acta, Suppl. e,* **2,** 1215–1229.
(with Eric Dowty and M. Ross) Fe^{2+}-Mg site distribution in Apollo 12021 clinopyroxenes:-Evidence for bias in Mossbauer measurements and relation of ordering to exsolution. *Proc. Third Lunar Sci. Conf., Geochim. Cosmochim. Acta, Supp. 3,* **1,** 481–492.

1973 (and H.J. Rose, Jr., C.S. Annell, M.K. Carron, R.P. Christian, D.T. Ligon, Jr., E.J. Dwornik, T.L. Wright, and L.P. Greenland) Chemistry of twenty-one igneous rocks and soils returned by the Apollo 15 mission. *Proc. Fourth Lunar Sci. Conf., Geochim. Cosmochim. Acta, Suppl. 4,* **2,** 1081–1096.
(with H.J. Rose, Jr., S. Berman, M.K. Carron, R.P. Christian, E.J. Dwornik, L.P. Greenland, and D.T. Ligon, Jr.) Compositional data for twenty-one Apollo 16 samples. *Proc. Fourth Lunar Sci. Conf., Geochim. Cosmochim. Acta, Suppl. 4,* **2,** 1149–1158.

1974 (with E.J. Dwornik, C.S. Annell, R.P. Christian, R.B. Finkelman, D.T. Ligon, Jr., and H.J. Rose, Jr.) Chemical and mineralogical composition of Surveyor 3 scoop sample 12029,9. *Proc. Fifth Lunar Sci. Conf., Geochim. Cosmochim. Acta, Suppl. 5,* **2,** 1009–1014.
(with H.J. Rose, Jr., S. Berman, F.W. Brown, M.K. Carron, R.P. Christian, E.J. Dwornik, and L.P. Greenland) Chemical composition of rocks and soils at Taurus-Littrow. *Proc. Fifth Lunar Sci. Conf., Geochim. Cosmochim. Acta, Suppl. 5,* **2,** 1119–1133.

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Memorial of Elliot (Bud) Gillerman
July 21, 1913–July 10, 1974

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Elliot Gillerman, known to everyone as Bud, was born in St. Louis, Missouri, on July 21, 1913, and died in Lawrence, Kansas, on July 10, 1974. He had survived a heart attack in early 1971 but had returned to full physical activity. He was working at his desk at home preparing for a field trip to New Mexico when he was stricken with a fatal heart attack.

Bud received his B.A. and M.S. degrees in geology at Washington University, St. Louis, Missouri, then worked as a topographic engineer and as a geologist with the U.S. Geological Survey, mostly in New Mexico. In 1953 he entered the University of Texas, Austin, where he received the Ph.D. degree in Geology in 1957. In 1957 he joined the faculty of the Department of Geology at the University of Kansas, Lawrence. The academic life suited him well and he contributed much to it. He taught courses in his special field of mineral deposits, both non-metalliferous and metalliferous, and a very popular course on