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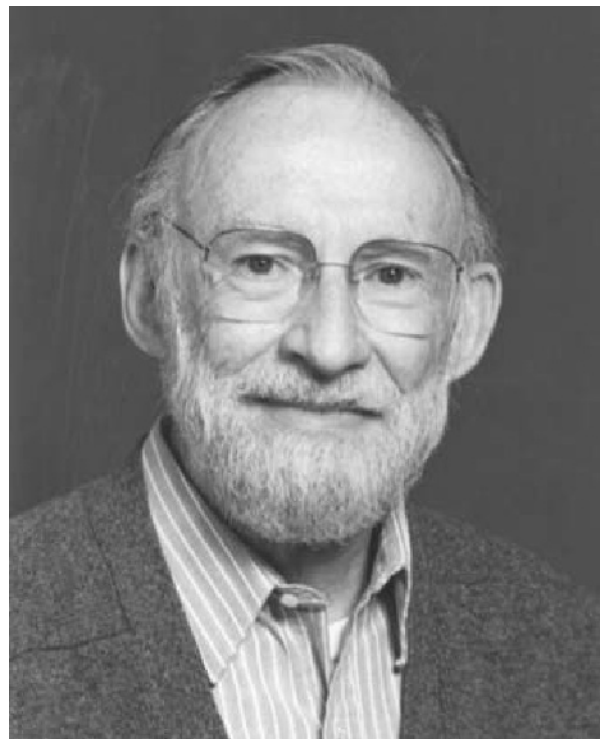
In Memoriam
Blair F. Jones (1934–2014)



Blair F. Jones, our friend, colleague, and mentor, died on Sunday, March 30, 2014, at peace and surrounded by his family, following a stroke. Blair was a long-time member of The Clay Minerals Society, dating back to the late 1960s, and was a Sustaining Member. In addition to serving on numerous committees over the decades, he was also President of the Society in 2002.

Blair is widely recognized as a pioneer in the interdisciplinary investigation of earth-surface processes in mineralogy and geochemistry. Blair was one of the leading forces in developing and applying the first numerical codes to model chemical thermodynamics in surface and groundwater systems. Blair continued to contribute to these efforts over the years, and the WATEQ code that he helped develop lies at the heart of today's numerical modeling software such as PHREEQC. These codes are used by investigators worldwide to describe the speciation and thermodynamic state of fluids with respect to solid phases. After his profound initial contributions, Blair continued to use numerical modeling approaches in other areas, such as SNORM, the 'Salt Norm,' which calculates the normative salt assemblage produced by a water composition if evaporated to dryness; and SPREADBAL, a tool for constraining mass-balance calculations in weathering reactions.

These contributions are particularly valuable because Blair was far from simply a 'number-cruncher' – his extensive field experience and his intuitive grasp of the complexities of field conditions informed his numerical work. He always reminded us of the power as well as the limitations of numerical modeling. Throughout the community, Blair's colleagues have fond memories of mapping, sampling expeditions, and field trips to outcrops, closed basins, and mudflats around the world.

Blair was fondly known as the 'Brine Monster' because of his fascination with salty mud puddles. Blair made major contributions to our understanding of numerous saline systems around the world, including the Great Salt Lake, the Murray Basin in Australia, the Saline Valley of California, the Department of Energy's Waste Isolation Pilot Plant in New Mexico, Lake Abert in Oregon, and Lake Magadi in Kenya. Blair's work in these and other settings was central to the development

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of the 'Eugster-Hardie' model of brine evolution, based on the principle of the chemical divide. This idea lies at the heart of thermodynamic modeling of brine geochemistry, and it has also impacted applications such as engineered salts, water-quality modeling, and the development of geothermal circulatory technologies.

In the realm of clay science, Blair made fundamental contributions to our understanding of the alteration of volcanic glass, the characterization of poorly crystalline clays, and silicate diagenesis in saline, alkaline environments. His work on these phases grew out of his aqueous geochemical studies of the evaporative evolution of brines. Blair demonstrated the importance of authigenic Mg-rich silicate phases in affecting brine evolution, particularly hydrous talc-like phases ('kerolite'), sepiolite and palygorskite-group minerals, and Mg-rich smectites. Blair's work was instrumental in demonstrating the potential for using thermodynamic approaches to modeling phase behavior in earth-surface environments, despite the biogeochemical complexities, poor crystallinity, and metastability or instability of solid phases.

Later in his career, Blair applied his expertise to understanding the behaviors of transition metals in the human brain. His cutting-edge contributions led to greater understanding of the role of metals in promoting or modulating cellular damage. In these efforts Blair spearheaded using national research infrastructure such as the Brookhaven National Laboratory synchrotron light source.

Blair selflessly and tirelessly served the discipline and the community with distinction as a leading senior scientist. At the United States Geological Survey, he served as the Water Resource Division's first Geochemistry Research Advisor for the National Research Program. He was awarded the Department of the Interior's Meritorious Service Award in 1981 and the Distinguished Service Award in 1986. Blair was recognized as a Fellow of the Geological Society of America and the Mineralogical Society of America, and was the Ingerson International Lecturer of the International Association of Geochemistry in 2002. In addition to his service to The Clay Minerals Society, he served on countless committees in public and society service. His leadership and mentorship touched countless people throughout the earth sciences and beyond. He was also known to quietly tutor disadvantaged urban youth in math and science, to volunteer, and to support many charities in his community.

Blair was born on the South Side of Chicago. He received his BA from Beloit College in 1955, and his Ph.D. from Johns Hopkins University in 1963. He was preceded in death by his first wife, Betty Foster Jones, who was mourned in the pages of The Clay Minerals Society Newsletter in 1993, the year of her death. Blair died the husband of Jane, father of Geoffrey and Sheryl, step-father of Susan, grandfather of Bryan, and brother of Ed. Blair's life, generosity of spirit, epic sense of humor, love of good wine and music, and his great many achievements were celebrated by friends and family at St. John's Episcopal Church in Chevy Chase, Maryland, on April 12, 2014.

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In Memoriam
Richard Warren Berry (1933–2014)

Dr. Richard (Dick) W. Berry, Professor Emeritus of Geological Sciences at San Diego State University, passed away suddenly at his home in Avon, Connecticut, on March 10, 2014, in the company of his wife, JoAnne. Dick had undergone heart surgery back in November 2013 but had been quite upbeat and positive about the results and seemingly on the mend. Around Valentine's Day he reported feeling great and was putting the final coat of polyurethane on a cabinet of drawers for his mineral specimens.

Dick enjoyed a rich academic career focused on clay mineralogy and was a long-time member and valued contributor to The Clay Minerals Society. He displayed bold insight in inviting the then 92 year-old Nobel Laureate Dr Linus Pauling to be the featured speaker at the Society's 1993 annual meeting in San Diego where Pauling delivered his last public lecture (available on DVD from the Society's office). This is a treasured moment in the Society's history, which traces its roots to Pauling's initial crystal-structure discoveries at Caltech.

Dick was also a dedicated educator determined to make a difference in students' lives. Amongst his many accomplishments he was the mainstay of the Department's mineralogy program for many years, developed a geology course for pre-service elementary school teachers, engaged in development of a new Science framework for public schools in 2000, and was instrumental in the acquisition of a new state-of-the art X-ray diffractometer in the Department in 2001.

Dick was born June 21, 1933, in Quincy, Massachusetts, to his father George – a naval architect – and mother Blanche. He received a BA in 1955 in Mining Engineering from Layfayette College in Easton, Pennsylvania, when it was still closely affiliated with the Presbyterian Church. He went on to receive his MS (Exploration Geophysics 1957) and Ph.D. (Geochemistry and Clay Mineralogy 1963) degrees from Washington University in St. Louis, Missouri, arriving in 1961 at SDSU as a faculty member. The ensuing 40 years, before his retirement from the University in 2001, were a time of growth, intellectually as a professor and scientific researcher, and spiritually as a Christian active in the Presbytery. Following his retirement in 2001 he continued to serve SDSU in an Emeritus capacity before moving back to Connecticut to be closer to family.

Dick valued family and church, enjoyed traveling, and contributing to the community. He is survived by three sons (one of them a Presbyterian Pastor) and two step-daughters. His wife, JoAnne, and he shared 11 grandchildren. He will be missed.

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In Memoriam
José Fripiat (1923–2014)

Professor José J. Fripiat, the prominent scientist and teacher who contributed so much to the surface and solid state science of minerals and that of clay minerals in particular, died on February 17, 2014, in Mexico City at the age of 90.

Our community has lost one of the founders of modern clay science and one of the most versatile materials scientists ever.

Born in summer 1923, Prof. José J. Fripiat graduated in 1946 from the Université Catholique de Louvain (UCL), Belgium, in chemistry. His MS thesis was on the relationship between polarizability and molecular spring constants, illustrating at an early stage his lasting interest in physical chemistry, spectroscopy, and fundamental questions. Yet, it was not in a traditional university environment that he began his research career. The world was still in the final years of colonialism and he was offered the opportunity to join the National Institute for Agronomic Studies in what was then the Belgian Congo. We are lucky that he availed of this opportunity for it was there, in one of the hotspots of tropical agronomy, that he discovered the world of soil minerals and could express for the first time his talent for scientific excellence while addressing practical problems. Understanding and improving the mechanisms of soil fertility was a challenge where he felt physical chemistry would be helpful.

Fripiat returned to Belgium in 1949, where, after a doctorate degree obtained for his work on infrared spectroscopy, two awards by the Royal Academy of Sciences of Belgium, and a postdoctoral year with Peter Debye, then at Cornell University, he was appointed as assistant professor in physical chemistry of soils at the Agronomic Institute of UCL. Then began an incredibly productive period of over 20 years, during which the young laboratory of soil physical chemistry, hosting the first transmission electron microscope in Belgium in 1952, became the world-renowned Laboratoire de Physico-chimie Minérale. He was promoted to associate professor (‘chargé de cours’) in 1953 and full professor (‘Professeur Ordinaire’) at the Faculty of Agronomy in 1959. Fripiat authored and co-authored more than 200 scholarly papers during this period, applying surface chemical and spectroscopic methods to the study of clays and related silicates or oxides not only for soil science problems but also for catalysis, petroleum geochemistry, cement chemistry, glass science, and even the origin of life. Groundbreaking results were obtained in all these fields. Quite naturally in view of his past interests, infrared spectroscopy was the first spectroscopic method used intensively, in parallel with what was happening in Spain, the UK, and in the US. This was soon followed by nuclear magnetic resonance (NMR), a technique which at that time was still very

much in its infancy. Dielectric spectroscopy was used in parallel. Electron spectroscopy for chemical analysis (ESCA or, more precisely, X-ray photoelectron spectroscopy, XPS) was applied to clay science and catalysis a few years later. The mobility of protons in clay crystal networks, the mobility of protons in adsorbed layers at room or at high temperature (water, alcohol, ammonia), the adsorption and the reactivity of amino acids and peptides adsorbed on clay minerals, the use of clays for the synthesis of what would now be called hybrid or nanocomposite materials, the surface chemistry of silica and silico-alumina, and the role of clays in petroleum genesis and migration or in the origin of life were the main topics on which he concentrated his interests during those years.

In 1972, while still professor at UCL, Fripiat accepted a professor position at the University of Illinois, sharing his time and energy between Leuven and Urbana-Champaign. Two years later, in 1974, he was offered the opportunity to become Director of the 'Centre de Recherche sur les Solides à Organisation Cristalline Imparfaite' (CRSOCI) of the French 'Centre National de la Recherche Scientifique' (CNRS) in Orléans, France, which he accepted. Founded by Jacques Méring, the CRSOCI was a worldwide reference laboratory for the structural science of clays and carbons. Under the leadership of Prof. Fripiat, the center also became a standard for physical chemistry. Those were years of extensive collaboration with the late Maribel Cruz-Cumplido, then his wife, who died prematurely in 1981. In the context of a growing interest in renewable energies and solar energy in particular, he initiated work on the photochemistry and the photocatalytic properties of dye molecules and organometallic complexes adsorbed on clay minerals, while still going on with research on water in clay minerals and on organoclays. This work led to one of the very few photochemical systems showing some activity for the decomposition of water in sunlight. Prof. Fripiat was one of the three final nominees for the International BP prize for energy in 1982, among eighty selected candidates. In a different field, applying the recently developed theory of fractals, he proposed a theoretical model for multilayer adsorption on rough surfaces, which is an elegant extension of the celebrated BET theory for multilayer adsorption and surface-area measurements. It was also in Orléans that he started working on the so-called hydrogen bronzes of transition metal oxides.

This is the point where most of us would have enjoyed retirement or emeritus status, but this was way too early for José Fripiat. In 1986 he became distinguished professor of chemistry at the University of Wisconsin, Milwaukee (UWM), and started a second career in the field of materials for catalysis. Twelve more years of intense work passed, devoted to the synthesis and the structural or surface chemical study of zeolites and mesoporous solids, mainly by high-resolution NMR spectroscopy.

That was not the end of the story – Fripiat retired from UWM and chose to continue in the same field at the Mexican Institute of Petroleum in Mexico City, working in collaboration with Graciela Pacheco at the University of Mexico who became his wife.

In early 2014 Prof. Fripiat was still looking forward to beginning research on mineral–bitumen interfaces.

Professor Fripiat was the author of more than 300 scientific papers and two books. He received numerous awards, among which was the Francqui prize, the highest scientific award in Belgium. He was a member of the Belgian Academy of Sciences and foreign member of the French Academy of Agriculture. He was President of the Association Internationale Pour l'Etude des Argiles (AIPEA) from 1973 to 1975 and was made AIPEA Fellow in 2005.

A demanding but also generous and inspiring teacher, mentor, and leader, a man of heart and action, Professor Fripiat was an exceptionally strong personality who has left his imprint on generations of colleagues and students all over the world. Looking for honors was never his motivation. Doing good and useful science has always been his passionate driving force. His work will resonate for many years.

José Fripiat is survived by his wife Graciela, three sons, three daughters, sons-in-law, daughters-in-law, and fifty grandchildren and greatgrandchildren. We express our deepest sympathy to them and to all his relatives and friends.

Henri van Damme and Faïza Bergaya
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