

IN MEMORIAM

LUIS AGUIRRE LE-BERT (1931-2025) the microscope man

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Professor Luis Aguirre Le-Bert, “Lucho” to the geological community, obtained his first degree as in Mining Engineering with Geology at the Facultad de Ciencias Físicas y Matemáticas (FCFM) of Universidad de Chile in 1957, but throughout his ensuing academic life he dedicated himself to the practice of Geology. He became a leader for many generations of students at the Geology Department at FCFM.

Having qualified, he undertook graduate studies at Berkeley University, California, where he established long and fruitful contacts with prominent petrologists such as Francis Turner and William Fyfe, who became central to his life and research for a long time. He then spent several years on geological mapping projects, based with his family in the city of La Serena, in north-central Chile, for the Instituto de Investigaciones Geológicas, at that time the state organization providing public geological information in Chile. Due to his experience in international science and the Chilean geological environment, he was invited to become the head of the School of Geology at FCFM, from 1967. Two years later he was implemental in the consolidation of the Geology Department in its current form, acquired a solid reputation as a focus of geoscience development in Chile and beyond. During his years as the first Director of the department, he created conditions for



generating the first PhD program in geology, and to promoting international cooperation with scientists from all over the world.

In 1973, just after organizing in Chile a Symposium on Circum-Pacific Granites under the International Geological Correlation Program, he was forced into exile by the military coup in Chile. The conference field trip across the Andes was interrupted when in Argentina. This exile lasted for 21 years, starting with two years in Japan, and continuing for seven years in England and then eleven years in France.



Different stages in Luis Aguirre's academic life. **A.** With geology students at Santa Gracia valley, near La Serena, in 1968, when he was the head of Escuela de Geología, from left to right: David Pacci, Manuel Suárez, Lucho, Vid Stambuk, Rolando Jorquera, Abelardo Núñez. **B.** Lunch in a field trip to the Abukuma Mountains, Japan, with Professors Funahashi (left) and Masao Minato. **C.** With his wife Monina at Chester, England, April 1980 (Photo R. Charrier). **D.** On fieldwork in Spain, during his stay at Université d'Aix Marseille, *ca.* 1987 (Photo Alain Demant). **E.** With the Petrology Group at Universidad de Chile, *ca.* 2005, from left to right: Francisco Munizaga, Luis Aguirre, Mario Vergara, Miguel A. Parada, Francisco Hervé (Photo by R. Charrier).

His trip to Japan in 1974 was facilitated by Tsuyoshi Nishimura, a geologist from Hokkaido University, who obtained faculty support to bring his wife Monina and their five children to join him. Luis Aguirre obtained his PhD at Hokkaido University in 1975.

In 1977 he was offered a position at the University of Liverpool, promoted by Professor Wallace Pictcher, who had attended the Circum-Pacific Granite meeting in Chile. During his time in England, he concentrated on the study of granites and on the very low grade metamorphism, mainly in the andesitic rocks of the Andes, in Colombia, Peru and Chile. In this he collaborated with international and Chilean researchers, among whom Beatriz Levi was probably one of the most important.

Luis Aguirre obtained a tenured position at the Geology Department of Aix-Marseille University in 1983. His scientific interests were already focused on the study of low-grade “burial metamorphism”, which is exceptionally well developed in the thick andesite-rich stratigraphic successions of the Andes. At Marseille, in addition to teaching, he led a European Community cooperation program with the University of Granada and supervised three PhD theses. One of these was on the Lower Cretaceous arc volcanism in northern Japan, another on Jurassic volcanism and metamorphism in Ecuador and Peru, and the third concerned the low-grade metamorphism of ophites (Triassic to Jurassic volcanic rocks related to the first steps of opening of the Atlantic Ocean) in the outer zones of the Betic Cordillera of Spain. He also participated in several PhD thesis juries in various universities in France and Spain. For 11 years, Luis Aguirre brought to Marseille, not only his vast experience in low-grade metamorphism with its unique phrenite and pumpellyite mineral assemblage, but also his extensive scientific and literary knowledge, aided by his remarkable memory.

He had a unique ability to recognize optically the mineral phases developed during burial metamorphism, often in very small and interstitial habits, namely prehnite, pumpellyite, diverse low-grade phyllosilicates and zeolites. Prior to his work, these phases, although abundant, were under-reported before from the Mesozoic and Cenozoic andesite-rich successions of the Chilean Andes. Knowing their habitats, as he referred to their occurrence in the rocks, allowed him to better understand the conditions of evolution of this mountain belt and the associated mineral deposits. His dialogue with these mineral phases

under the microscope, which included microprobe analyses at Montpellier, France, was one of the major breakthroughs in the geology of Chile in the late 20th century. It was during this European stage of his research and teaching activities, that he was informally referred to as “the microscope man” by part of the younger British academic community, as one of us later discovered there.

The return to his country became a priority for the Chilean geological community and, when it finally occurred in July 1994, it was greatly appreciated. He then participated in steering a project of the International Geologic Correlation Programme (IGCP) on low-grade metamorphism that brought to Chile the most famous specialists on the subject from all over the world, in particular from New Zealand. He directed numerous undergraduate and graduate theses in Chile, one of his main wishes during his long exile being to contribute to the development of Chilean society.

He continued working together with his former European colleagues until his retirement in 2007. His home, referred to as *LuchoMonina's* by himself and his closest friends in consequence of his long-lasting marriage with Monina, was the first place that his French colleagues visited when they came to Chile for research collaboration.

His scientific and human achievements were strongly appreciated by the Chilean scientific community, which granted him all the important distinctions, such as the Juan Brüggen medal of the College of Geologists, the Presidency of the Geological Society of Chile, the position of Emeritus Professor at Universidad de Chile, and his nomination as member of the Chilean Academy of Sciences, among others. He established a level of scientific achievement and of moral standing that all members of the Chilean geoscientific community rejoiced in during his life, and will be considered a major legacy in the future.

Before leaving, he left us his memoirs, or rather memories as he himself describes them, in which he presents his life story with the simplicity and tranquility of spirit of someone who lived his life fully and consistently. A life intertwined with the ups and downs of national and global politics, marked by a long absence from his tormented country, guided by the precepts of the Gospel, his unwavering social commitment, his dedication to science, and his deep affection for his family. His was great example for those who met him and will be so for the coming generations.

With Lucho's death, the Chilean geological community has lost not only a great scientist but, above all, a model of human behaviour for all the Chilean geological community.

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