

Memorial to Alfred Kröner 1939–2019

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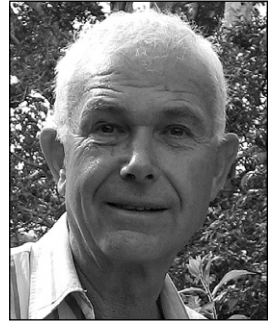
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Alfred Kröner, the renowned geologist-geochronologist and authority on Precambrian crustal evolution and tectonics of the continental crust, died in Freiburg, southern Germany, on 22 May 2019, aged 79. Alfred was born in 1939 in Kassel, Germany. After two years of military service, he attended the Technical University of Clausthal-Zellerfeld where he received his first degree (BSc equivalent) in geology. He continued his geological education in the University of Vienna, where he also studied music at the Vienna Conservatory from 1962 to 1963, reaching a semi-professional standard in the violoncello; fortunately, he decided to continue with geology for his future career. After two years in the Technical University of Munich, he was awarded in 1965 a diploma in geology (MSc-equivalent). Alfred then made a great leap to study geology and geochemistry for three years at the University of Cape Town in South Africa, which awarded him a PhD in 1968. Before embarking on his career as an academic geoscientist, Alfred gained practical experience as an exploration geologist in 1969 in southwest Africa and Namibia (where he later studied the geology). Then he became a senior research fellow of the Precambrian Research Unit of the University of Cape Town, where he became fluent in written and spoken English and reached the position of acting director in 1974–1976. This impressive track record enabled him to become a full professor of geology in 1977 at the Johannes Gutenberg University of Mainz in Germany, from where, upon retirement in 2006, he became professor emeritus.



Having spent a few years as visiting professor at Stanford University (USA), Australian National University, Curtin University (Australia), and University of Western Australia, Alfred accepted in 2006 an invitation from Dunyi Liu to start a long-term relationship with the SHRIMP Centre of the Chinese Academy of Geological Sciences (CAGS) in Beijing, where he spent six months every year. From there, he travelled widely to study Precambrian rocks and to date them with U-Pb zircon SHRIMP (sensitive high-resolution ion microprobe) ages. Alfred studied the geochronology, geotectonics, and crustal evolution in innumerable countries and in almost all continents, invariably involving local geoscientists in this work. His favorite area was in southern Africa, on which he and Axel Hofmann published his latest book in 2019, *The Archean Geology of the Kaapvaal Craton*.

Alfred lived for field work, studying more outcrops on more continents than most geoscient-

tists. In the early stages of his career, he was most interested in paleomagnetism, but later concentrated more on geochronology and published many studies that used Pb-Pb evaporation and ion probe techniques for dating zircons particularly in Precambrian rocks in southern Africa, China, the Arabian-Nubian Shield, southern India, and Sri Lanka. A significant change in direction of his research came when he began to find Precambrian zircons in Phanerozoic volcanic rocks in Egypt, Mongolia, and China, which led him to search for and study old zircons in young lavas in, for example, the islands of Galapagos, the Caribbean Antilles, and Cuba.

Alfred's work always undertook careful investigations of the structure, lithologies, and tectonics of rocks in the field. To him, field work was an essential prerequisite to laboratory studies. He strongly believed that it was the responsibility of all professional scientists to publish their new ideas and data, and irresponsible to do otherwise. Accordingly, he published almost 500 research papers in earth science journals and books, was a co-author of one textbook, a co-editor of five multi-author books, and an editor of several special issues of international journals. He organized many geoscientific meetings, including a Penrose Conference in 2006, "When Did Plate Tectonics Begin?" As a result of his truly remarkable and prolific track record, Alfred was awarded the Jubilee Medal by the Geological Society of South Africa, the Ananda Coomaraswamy Memorial Medal by the Geological Society of Sri Lanka, the Emanuel Boricky Medal by Charles University in Prague, the Distinguished Service Medal of the Province of Rhineland-Palatinate in Germany, the Steinmann Medal of the Geologische Vereinigung of Germany, and the Friendship Award by the Chinese State Administration of Foreign Experts Affairs in Beijing. Also, he was made an Honorary Professor of Northwest University of Xian in China, an Honorary Fellow of the Geological Society of America, and an Honorary Professor of the Chinese Academy of Geological Sciences, Beijing. In 1999, he was invited to give the Du Toit Memorial Lecture of the Geological Society of South Africa, and in 2017, he received a special award by the Chinese Academy of Geological Sciences in Beijing for reaching the remarkably high H-Index of 100.

In his long career, Alfred gave much of his time as a leading geoscientist to help the progress of the earth science community. He was secretary of the International Union of Geological Sciences (IUGS) Commission on Tectonics, chairman of Working Group 3 of the International Lithosphere Program, Leader of International Geoscience Programme (IGCP) Project 280, "The Oldest Rocks on Earth," president of the Geologische Vereinigung in Germany, vice-president of the European Union of Geosciences, co-chairman of the ERAS-Project of the International Lithosphere Program, and member of the IGCP Scientific Board. He was for many years a co-editor of *Terra Nova* and *Precambrian Research*, and a member of the editorial board of five other major international journals.

Throughout his career, he was an inspiration, a great motivator and instructor for young researchers who shared his passion. He was always interested to learn new analytical techniques and geoscience ideas. His endless enthusiasm and provocative questions and discussions that he generated at conferences and meetings will be greatly missed. Alfred Kröner was the very best of geoscientists.

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