Professor Richard Limon Stanton

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BY DR TIM McCONACHY, with assistance from MARION STANTON and SOPHIE EGDEN

RICHARD Limon Stanton, a distinguished economic geologist, died peacefully in his sleep in Canberra on 25 August aged 94. His life and work were strongly influenced by the Solomon Islands. Indeed, he once said that his life could be divided into two parts: that before he first went to the Solomons, and the much longer time since.

As a 24 year-old PhD student at the University of Sydney, Richard arrived in the Solomon Islands in mid-December 1950 after an uncomfortable four-day-long journey from Sydney, hopping from airstrip to airstrip mostly in an unlined freighter DC3 along the east coast of Australia through New Guinea and New Britain, eventually to Honiara. After a few days in Honiara he was off on the vessel Nellie to the southeast of Ysabel, to undertake what proved to be the very first systematic geological mapping in the Solomons.

Aerial photographs were not available at that time and all he had was a very crude outline map of the coast of Santa Ysabel with two rivers to guide his work. It was hard going, but a wonderful experience. He had travelled extensively with his parents as a child and a teenager, and seen much more of the world than most people of his age, but the Solomons were something quite different from anywhere he had been before. He was immediately fascinated by the islands and their people.

While mapping Ysabel's geology, Richard soon realised he was working in a modern analogue of the geological situation he had been mapping as part of his PhD study around the Bathurst–Burraga area of NSW. He observed that the Solomons festoon comprised several larger islands, and many small islands that consisted of one or two volcanoes surrounded by fringing reefs. Most of the volcanoes were dormant, but some of them were still in a stage of degassing, giving off hot springs and small fumaroles. In lectures at the University of New England, Armidale (1971–1986), he would describe these fumaroles and the fringing reefs in such eloquent prose, mesmerising students, and taking them into the world of the Solomon Islands.

Richard said that this early recognition of the idea, or principle, that many ore deposits formed in association with the development of volcanic island arcs was probably the most important and influential single thing that he ever did. Indeed, it was a significant fork in the road that had profound implications for economic geology. It led to many ramifications in research and in the discovery of metals in numerous locations around the world.

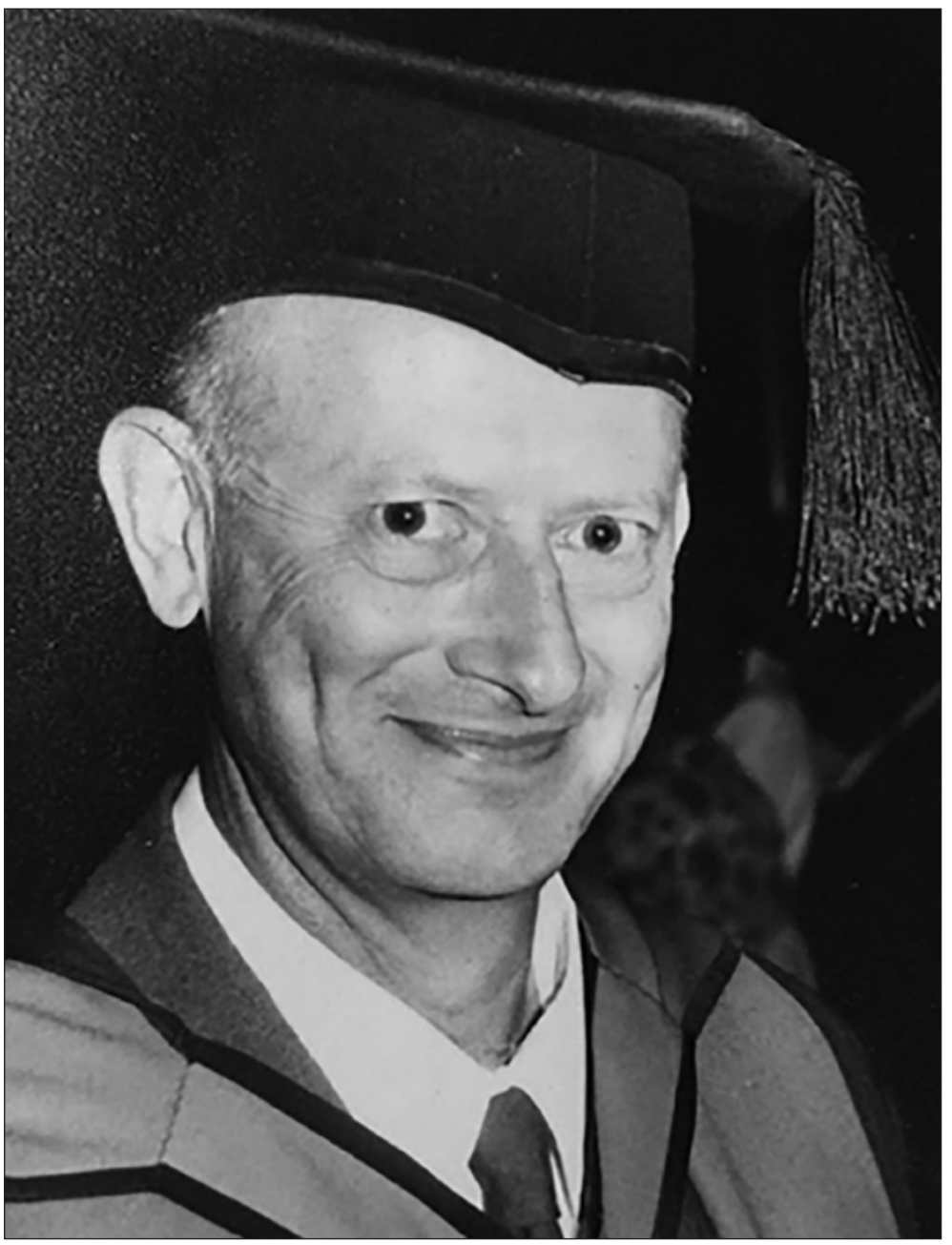
Richard's early work in the Solomons also led on to a large part of his work through the rest of his professional life, much of which concerned the physics and chemistry involved in the concentration of copper, zinc and lead in volcanic lavas to assist mineral exploration. This is well documented in his distinctive style in numerous publications and books, including Ore Petrology, The Precursor Principle, and Ore Elements in Arc Lavas. Like many pivotal moments in the progress of science, his theories on the genesis of ore deposits were initially a source of bemusement for some, but he held this principle, and these days it is accepted and taught as geological fact. As he often said to his students, of science: 'If it's true, one day it will be useful.' The subsequent discovery of the Stanton volcano further illustrates this important point.

On Good Friday 2002, the Australian research vessel Franklin sailed into Honiara to pick up the then-Director of the Geological Survey of the Solomon Islands, Donn Tolia. Donn had joined the CSIRO-led marine expedition to survey volcanic arcs in the Solomons archipelago to look for hydrothermal activity and study natural ore-forming systems. Notably, a new submarine volcano was discovered 900 metres below sea-level near the Santa Cruz islands in the far eastern Temotu Province. The discovery was named Stanton in recognition of Richard's contribution to the geology of the Solomon Islands and to economic geology.

Although this expedition found tantalising signs of hydrothermal activity, it was not until eight years later, in 2010, that a commercial exploration team recovered samples of copper and zinc-rich massive sulfide from the Stanton volcano. To the best of my knowledge, this discovery was the first in the Solomon Islands, either on land or at sea. The circle had completed a full turn: from an idea and the setting of a principle to a reality. In October 2014, Professor Stanton kindly provided a travel scholarship that enabled Thomas Toba, Chief Geologist of the Geological Survey of the Solomons Islands, to visit Australia. A small function in Canberra was held to commemorate the visit and a plaque holding a sample of massive sulfide from the volcano was presented to Richard, who was thrilled to receive it.

Richard received numerous awards and served his profession faithfully. Awards included the Royal Society and Nuffield Foundation Bursar at Imperial College London and the University of Durham in 1964, and a Fulbright Award in 1966. He won the University of Melbourne's David Syme Research Prize in 1972, the Goldfields Gold Medal of the Institute of Mining and Metallurgy (London) in 1976, and the William Smith Medal of the Geological Society (London) in 1987. In 1984 Richard became an Honorary Fellow of the Institute of Mining and Metallurgy (London) and was Vice-President of the Australian Academy of Science from 1989 to 1990. He was elected an Honorary Fellow of the Geological Society of America in 1991, and was awarded the WR Browne Medal of the GSA in 1990 and the Penrose Medal of the Society of Economic Geologists in 1993. During the 1960s through 1980s, he worked closely with Haddon King who led CRA Exploration (now Rio Tinto), and, fittingly, was awarded the Haddon Forrester King Medal of the Australian Academy of Science in 1998. He was made an inaugural Fellow of the Royal Society of NSW in 2009 and was elevated to Distinguished Fellowship in 2012. He was also honoured for his achievements by becoming an Officer of the Order of Australia in 1996.

Richard was a fine mentor and good friend to many students who went on to work at senior levels and as leaders in the mining industry and academia. He was deeply saddened by the death of his only son (also Richard) in 2015, and is survived by his much-loved daughters Ruth and Marion and six grandchildren: Ben, Emma, Sarah, Kate, Julia and Alice. His quiet, thoughtful demeanour and formidable insight will be sadly missed but never forgotten.



Richard L Stanton when awarded the David Syme Research Prize at Melbourne University in 1972. Image courtesy Marion Stanton.

L-R: Professor Richard Stanton, Mr Thomas Toba, Ms Sophie Egden, Dr Tim McConachy and Ms Fiona Irda, Acting High Commissioner at 'Celebration of the Geological Survey of the Solomon Islands', Canberra in 2014. Image courtesy: Dr Graham Carr.