

Obituary:

Dr Laurence Allison Bushell

by Jack Levin*

Dr Laurence Allison Bushell, a former President of the Chemical, Metallurgical and Mining Society of South Africa, now The South African Institute of Mining and Metallurgy, was born in Queenstown on 20th June, 1910, and died in Johannesburg on 4th November, 1991.

There were three distinct periods in the career of Laurie Bushell, each enlivened by some special interests or achievements.

Period of Exploration

The first comprises his university experience and his exploration of possible fields for a long-term interest. It extended from 1927 to the early part of 1948, during which time he entered Rhodes University, received a BSc degree, then an MSc degree, had two years' experience as a junior lecturer, was employed at the Fuel Research Institute for 13 years, and, as a final experience in this period of exploration, worked as the Technical Director for a company manufacturing plastic goods. Highlights in this period were his award as the best chemistry student in 1929, and his advancement in the Fuel Research Institute eventually to the position of Deputy Director. It was at the Fuel Research Institute that he did his notable work on the sampling of coal, which earned him a PhD degree from the University of South Africa in 1937, and the award by the Chemical, Metallurgical and Mining Society of South Africa of a gold medal for his paper on that subject, published in February 1937. It was in the auspicious ambit of his work at the Fuel Research Institute that he celebrated his marriage in December 1938.

Gold-mining Interests

In April 1948 Bushell entered on the second period of his career, which was his association with the organization now known simply as Anglovaal Limited. It began when he was appointed as a Technical Metallurgical Assistant and lasted till his retirement as Assistant Consulting Metallurgist in June 1970. It was during this period (1954/55) that he served as President of the Chemical, Metallurgical and Mining Society of South Africa. His Presidential Address was entitled 'Research Applied to the Gold-mining Industry', and it conveyed, among other matters, the principle of a scientific approach to mining and metallurgical problems—, an approach that he applied consistently in his own work.

Bushell's metallurgical experience widened as his responsibilities increased, and he was presented with a new field of interest when the gold-mining industry was thrust into the problems of the extraction of uranium from gold ores and residues. Bushell's part in what was virtually a new industry included his service on the initially



secret committee established by the Chamber of Mines to deal with the necessary complicated financial and technical matters, and the supervision of a pilot plant for the extraction of uranium at the Virginia Mine.

Platinum and Base Metals

The third period of Bushell's career extended from mid 1970 when he joined Mintek to his second retirement in May 1978. At Mintek, Bushell's experience in the flotation of sulphide minerals proved invaluable, and he made essential contributions to the development of several important projects that were undertaken by Mintek. Probably the best-known of them was the work that led to the establishment of the Black Mountain Copper-lead-zinc operations at Aggeneys. It is appropriate to add a mention here of the treatment of the now well-known platinum-bearing chromites of the UG-2 Reef, since Bushell's role in that investigation, although of seminal importance, is virtually unknown. The first successful flotation tests were done under his guidance, and he went on to make a preliminary assessment of the economic implications, which took into account the little that was then known of the concentrations of copper, nickel, and platinum-group metals in the UG-2 Reef. The information so obtained could not be published at the time, but it provided the impetus for the many subsequent investigations that were necessary to establish the practicality and benefits of the exploitation of the UG-2 chromites.

Personal Interests

Bushell had always balanced his work-day enthusiasms with a variety of personal interests, but his retirement from Mintek gave him some extra time for his wife Sally and their four children, for some high-quality golf, and for lots of quality bowls, but not as much time as he had been used to for gardening (he presented his collection of orchids to Mintek) and for his do-it-yourself tasks around the house. There was much to learn from hard-working, hard-playing, clear-thinking, plain-speaking Laurie Bushell.

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