



This issue of the Journal commemorates Danie Krige and his pioneering work in geostatistics, which has set the global standards in this discipline. His work is one example of many innovations emanating from the South African mining industry, which because of its diversity and complexity, requires continual innovation in order to survive and grow.

The South African gold mining industry started with mines at relatively shallow depths and with high head grades, making them extremely profitable. Initially the mines were located in the Witwatersrand area but innovative geological exploration led to the discovery of the Carletonville, Klerksdorp, Free State, and Evander goldfields. It is hard to imagine now that back in 1970 South Africa's gold production was a staggering one thousand tons, about 35 million ounces. As mining proceeded deeper, the development of new mining methods was instituted. We are now heading for depths in excess of 4 km, well beyond any other deep-level mining. With the decrease in gold head grades, metallurgists had to look at more cost-effective gold processing routes. This is where the carbon-in-pulp /carbon-in-leach (CIP / CIL) technology took over from the traditional cyanide leaching and cementation technology. Although the CIP / CIL technology was not pioneered in South Africa, the development of carbon elution, carbon regeneration, and gold electrowinning was mainly a result of South African innovation.

The South African platinum mining industry started with the mining and processing of the Merensky Reef. Initially the UG2 chromitite was not considered because of the metallurgical challenges. However, as Merensky reserves started to dwindle, the mining and processing of the UG2 became a necessity. Again, South African metallurgists rose to the challenge and developed innovative approaches to concentration and smelting. Today more UG2 is processed than Merensky.

When the global consumption of stainless steel and speciality steel increased significantly after the Second World War, the opportunity for producing ferroalloys in South Africa was identified. The design of submerged arc electric furnaces for the production of ferromanganese and ferrochromium was developed in South Africa. Later, the application of DC electric furnaces for the production of ferrochromium from fine chromite, and then for the smelting of ilmenite to produce pig iron and titanium slag, was pioneered in South Africa. This demonstrates the creativity of South Africa's pyrometallurgists.

There are also significant achievements to highlight in the field of hydrometallurgy. The Rand Refinery is the world's largest gold refinery and the technologies employed are efficient and innovative. In the platinum industry there are three precious metals refineries with capacities in excess of any other facility globally. Over the years these refineries have introduced significant technology changes, again mainly locally conceived.

I have used the above examples to illustrate that innovation is alive and well in the South African mining industry. The SAIMM promotes innovation mainly via the convening of conferences and also through the Journal, as well as access to papers via its website. Danie Krige was a shining example of innovation, and may his legacy inspire further innovation well into the future.

M. Dworzanowski
President, SAIMM