100 Years of mining technological development as recorded in the Journal of the Southern African Institute of Mining and Metallurgy 1894 – 1994

By P.R. Janisch FSAIMM

Gold production from the Witwatersrand basin has continued uninterruptedly for some 126 years. Technology has been a leading contributor to the survival of the industry, as I hope to demonstrate. Three elements of this technology stand out in any review of its history.

The first is cyanide recovery of gold from refractory ores, demonstrated by MacArthur and Forrest at the Salisbury mill, Johannesburg, in 1890.

The second is the uncovering of gold-bearing reefs underlying barren younger strata by geophysical means in the 1930's, which led to the discovery of new goldfields in the West Witwatersrand, the Orange Free State and the Evander area east of Springs.

The third is the development of deep level mining – deeper than 2000 metres – using a scientific approach. Up to the middle years of the 20th century mining was more of an art than a science. This was simply not good enough for the extraction of reefs known to exist at depths down to 3500 metres or more.

Each of these has ensured the continuation of Witwatersrand mining into the early 21st century.

The Southern African Institute of Mining and Metallurgy, which celebrated its centenary in 1994, has been an important conduit for the dissemination of technical knowledge by way of publication in its Journal and the organisation of conferences and seminars. This is reflected in the special Centenary issue of the Journal, which reproduced eighteen papers, selected from an inventory of some 1000 published since 1894. The Journal also published the titles and authors of a further 57 papers which had to be omitted for reasons of space.

A cursory scrutiny of these titles should be sufficient to confirm the importance of the role which the institute has performed in the history of mining in South Africa.