

# SPOTLIGHT

## on the Council for Mineral Technology (Mintek)

by H. W. GLEN\*

The National Institute for Metallurgy — usually referred to as NIM — has become the Council for Mineral Technology, or Mintek. The Honourable F. W. de Klerk, Minister of Mineral and Energy Affairs, announced the change of name at the official opening of the main entrance to Mintek's premises on 30th October, 1981.

### Entrance Feature

The Minister, outlining the background to the choice of entrance feature, referred to NIM's long search for a suitable subject to mark its main entrance — an artistic feature that would symbolize its objectives and activities. When Edoardo Villa, the well-known sculptor and artist in steel, was consulted, he pointed out that NIM already had a modern work of art at its main entrance — the watertower. All that were missing were colour and setting.

Accordingly, the tower was painted orange to symbolize Mintek's emblem, which is a burning flame, and was surrounded by metal panels, designed by Mr Villa, to represent the metals that feature in Mintek's work. Now, this highly functional structure — truly an expression of 'creative practicality' — marks the entrance to Mintek, as shown on the cover of this issue. When floodlit at night, its colour glows like the flame from a pyrometallurgical operation.

### Reasons for Change

The Minister explained that the word *institute* had often given the public the wrong impression, and had led people to think that the National Institute for Metallurgy was a branch of a larger organization. That was only to be expected since many small research organizations, such as those at universities, are referred to as institutes. Comparable statutory bodies are called councils, and it was desirable that NIM should be brought into line with the rest. In addition, the word *metallurgy* did not adequately describe NIM's objectives, metallurgy being but one aspect of its activities. Therefore, NIM had become Mintek — the Council for Mineral Technology, or Raad vir Minerale tegnologie.

### Mintek's Work

The Minister paid homage to the good work done at Mintek by giving, in the following words, a few illustrations of its recent achievements.

#### *Ion Exchange*

'The ion-exchange technology for the extraction of minerals such as gold and uranium that has been developed here is being used extensively both here in the

Republic and overseas.

#### *Carbon-in-Pulp*

'The carbon-in-pulp process for the extraction of gold is being adopted in place of the former cementation method. This development is one of the most important in the history of gold recovery in South Africa, and is the first major change made to the conventional extraction circuit in fifty years.

#### *Extraction of Platinum*

'The story of the work that Mintek completed recently on the extraction of platinum from the ores in which it is found in certain areas in the Transvaal Bushveld reads like a tale from the *Arabian Nights* — the discovery of an economic process for the extraction of the platinum from the UG-2 ores was the 'Open Sesame', the key to the door of an Aladdin's cave filled with priceless treasure. This platinum, which would otherwise have lain untouched imprisoned in its impurities, has an estimated value of three hundred thousand million rands.

#### *Base Metals*

'We have heard and read so much about the deposits of lead, zinc, copper, and silver that were discovered in the north-western Cape, but what is not so well known is that Mintek was asked to develop a process for the extraction of these metals. This was a particularly difficult problem to solve because of the low grades of the ores. The staff worked round the clock for months on end, and eventually developed the process that is now being used on a large scale at these mines.

#### *Metallurgical Processes*

'This research organization is a leader in the introduction of new and technically advanced methods for metallurgical processing. For instance, in the production of ferro-alloys, South African industry has some of the most modern furnaces in the world, but these do not function at their optimum efficiency because of the difficulty of controlling conditions such as the feed rate of the ore and the coal, and the temperature in the furnace. Mintek has developed a sophisticated process based on computer control of these variable elements, and this has improved the output of the furnaces by as much as 50 per cent above their designed capacities.'

### Need for Research

The Minister concluded his speech by saying that results of this kind not only proved the necessity for mineral research but acted as a stimulus and inspiration. South Africa's vast deposits of minerals were often of low grade, and continuous intensive research and development were necessary to keep the mining industry economically competitive and viable.

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### Conclusion

The ceremony ended with a speech of thanks to the Minister by Mr P. A. von Wielligh, a well-known figure in the mining world and the mining industry's representative on the Council of Mintek.

Mr Von Wielligh commented on the two 'transmutations' of the evening: the tower and pieces of metal, which had been transmuted to a work of art, and NIM, which had been transmuted to Mintek. He added that Mintek had been closely associated with the mining industry since its beginnings in the 1930s. In the years

since then, the Minerals Research Laboratory, the Government Metallurgical Laboratory, NIM, and now Mintek had done much valuable work for the industry, and he thanked them and 'those who had conceived the idea of establishing this laboratory and developing it into the advanced and effective research organization we have today'.

However, as Dr Alberts, President of Mintek, so often says: Mintek's successes are in no small way due to its privileged interaction and cooperation with a sophisticated and leading mining industry.

## Awards for bravery

Two men who disregarded the dangers of fiercely burning timber and falling rocks to douse an underground fire, using their hard hats to scoop water from a drain, received the Chamber of Mines Award for bravery at a ceremony held at West Driefontein Gold Mine near the end of October.

Making the presentation, Mr D. N. Stuart, General Manager of the Chamber, said that the men, Mr Petrus Pelser and Mr Edwin Goosen, had by their 'speedy and selfless action prevented what could have been a major disaster involving possible loss of life and great damage in the No. 2 Shaft of West Driefontein Gold Mine', near Carletonville.

He said that on 20th March, 1981, Mr Goosen discovered a fire in the 18 level footwall drive west of the mine and immediately telephoned the shaft overseer, Mr Pelser. Mr Goosen then returned to the fire and attempted to extinguish it. He was subsequently joined by Mr Pelser, who found that the fire had already spread some 52 metres and was burning fiercely.

Reading from the citation that he presented to the men, Mr Stuart said: 'The strong ventilation current in that section of the mine was causing pieces of burning timber to be torn from the hangingwall and tossed as much as 5 metres ahead of the fire. Pieces of hangingwall which had been supported by cribbing had also begun falling.

'Overall it presented an awesome sight and conditions of extreme danger to anyone venturing into the area.

'Conscious of the threat to people working in the 18/4 and 18/6 stopes, as well as to the mine itself, and disregarding the great danger to themselves, Mr Pelser and Mr Goosen ran through under the burning timber to a position ahead of the fire, where they created a fire break. Having prevented the further spread of the fire, they proceeded to douse it with water from the drain.

'In putting the safety of their fellow workers and of the mine itself above their own, Mr Pelser and Mr Goosen acted in the finest traditions of the mining industry.'

What the citation did not mention, said Mr Stuart, was that 'these men doused the fire with their hard hats, using them to scoop up water from the drain, or that, if it had not been for a warning shout from Mr Pelser, Mr Goosen might have been crushed by a huge piece of rock that dislodged while he was removing cribbing ahead of the fire.



**Mr Edwin Goosen (left) and Mr Petrus Pelser of West Driefontein Gold Mine pictured with the Certificates of Bravery that form part of the Chamber of Mines Award for Bravery they received in October 1981. The men also each received an inscribed watch, a Chamber of Mines Honour Tie, and a cheque for R250.**

'Nor does it say that so great was the heat that Mr Goosen's fine beard was singed, or that these men struggled for an hour and a half to put out the fire, so that they were completely exhausted by the time they had finished'.

The story of their actions would be woven into the fabric of 'those finest traditions of the mining industry' mentioned in the citation, he said.