SPOTLIGHT

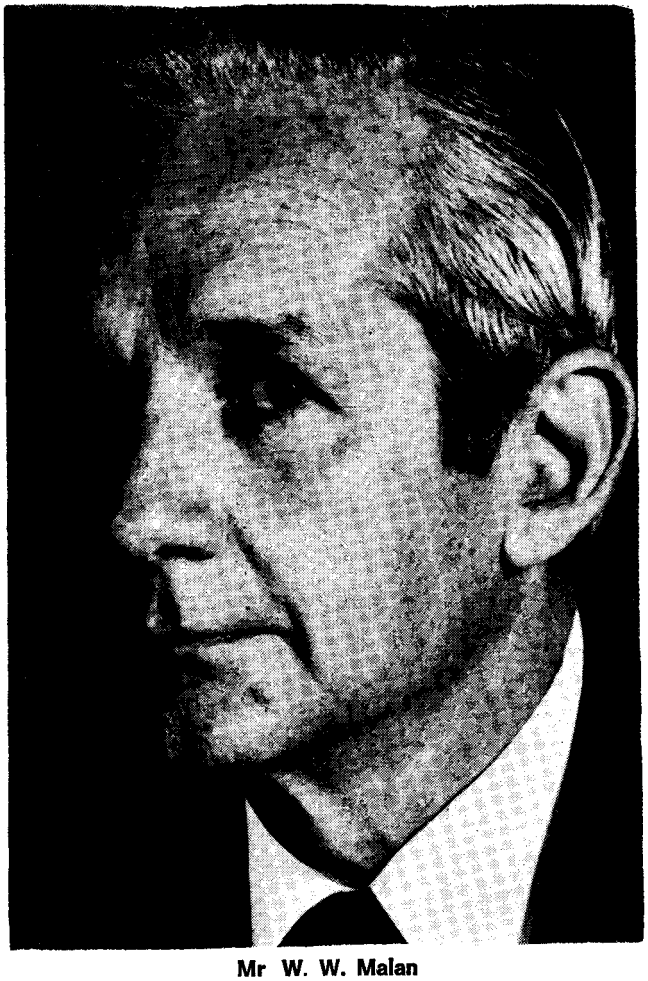
on new office-bearers of the Chamber of Mines

At the Annual General Meeting of the Chamber of Mines of South Africa, held in Johannesburg on 29th June, 1982, the following leading members of the mining industry were elected to office for the 1982–1983 term:

Mr W. W. Malan	President
Mr C. T. Fenton	Vice-President
Mr G. Y. Nisbet	Vice-President

William Wouter Malan was born in Springs on 7th November, 1928, and was educated at the Springs High School and the University of the Witwatersrand, where he obtained a B.Sc degree in mining engineering.

As a mining student, Mr Malan worked on Nigel Gold Mine and Marievale Consolidated during the university vacations. After graduating he was employed in various capacities on Nigel Gold Mine (December 1950 to January 1951), Vogelstruisbult (March 1951 to November 1962), Libanon (November 1962 to January 1964), and Doornfontein, where he was Manager from 1965 to 1968. During this period he introduced the raise-boring technique to the South African gold-mining industry, being one of the forerunners in the industry's fight against rising costs by means of mechanization.



Mr W. W. Malan

Mr Malan was appointed Acting Consulting Engineer of Gold Fields of South Africa, Limited, in October 1968, and Consulting Engineer on 1st April, 1969.

On 14th July, 1975, Mr Malan joined the Anglovaal Group as Deputy Technical Director and in July of the following year was appointed Technical Director. He is a director of Eastern Transvaal Consolidated Mines. Limited, Prieska Copper Mines (Pty) Limited, and Swarsab Mining Exploration and Development Company (Pty) Limited.

Mr Malan was a member of the Technical Advisory Committee from March 1970 to June 1975. In July 1976, he was appointed to the Council of the Chamber, the Executive Committee, and the Gold Producers' Committee. He was a Vice-President of the Chamber for the years 1978–1979, 1980–1981, and 1981–1982.

Colin Thompson Fenton was born in Johannesburg on 20th June, 1934, and was educated at King Edward VII High School, Houghton, where he matriculated in 1951.

After leaving school, he joined Crown Mines as a learner official and was awarded a bursary from the Chamber of Mines to attend the University of the Witwatersrand. During university vacations, he worked as a miner on Crown Mines and Rustenburg Platinum Mines. He graduated from the University of the Witwatersrand as B.Sc (Eng.) in 1956.

After graduating, Mr Fenton was employed in various capacities on Hartebeestfontein and Doornfontein, where he was appointed Underground Manager in 1960. Subsequently he served as Section Manager on West Driefontein (May 1967 to September 1967), Assistant Manager on Libanon (October 1967 to November 1969), Manager on Kloof (December 1969 to October 1972), Manager on Doornfontein (November 1972 to November 1974), and Manager on Deelkraal (December 1974 to May 1975).

Mr Fenton was appointed Consulting Engineer of Gold Fields of South Africa Limited in June 1975, General Manager in March 1979, and Executive Director in November 1980. He heads the Gold Division of the Group and is Chairman of Deelkraal, Doornfontein, and Kloof and a director of a number of other companies.

Mr Fenton was a member of the Technical Advisory Committee from June 1975 to February 1979. In March 1979, he was appointed to the Gold Producers' Committee and, in November 1980, to the Council of the Chamber and the Executive Committee. In June 1981, he was elected a Vice-President of the Chamber for the year 1981–1982. Mr Fenton heads the Chamber's negotiating team, and has been involved in numerous negotiations with trade unions and officials' associations. He is a member of the Councils of the Witwatersrand and Vaal Triangle Technikons.

Mr C. T. Fenton

George Young Nisbet was born in Benoni in 1923 and was educated at Pretoria Boys High and the University of the Witwatersrand. His studies were interrupted when he joined the S.A. Artillery in 1941, serving in North Africa and in the Italian campaign. He returned to Wits in 1946 and, upon graduation with a B.Sc. in mining engineering in 1948, was awarded the Chamber of Mines Research Scholarship and Gold Medal.

In 1949 Mr Nisbet joined S.A. Lands and, after a two-and-a-half year spell there, he spent part of 1952 studying mines and mining methods in Australia in terms of the Chamber of Mines' Research Scholarship. He returned to S.A. Lands but left to work on a small diamond mine – Star Diamonds. He spent two years on the mine, eventually becoming Manager, but a slump in the diamond market led him to return to gold mining, and at the beginning of 1954 he joined Free State Geduld. After a period in Anglo American's head office as Technical Assistant, he saw service on Western Holdings and President Steyn before returning to head office as Group Training Officer. After a year in this position he served as Assistant Manager at Vaal Reefs, as a member of the Consulting Engineers' staff for Western Transvaal mines, and as Manager of Western Holdings. After a year at Western Holdings, he was appointed General Manager of Consolidated Diamond Mines. Mr Nisbet became a consulting engineer of the Anglo American Corporation in 1972, and a deputy managing director of the Gold Division in 1974. He joined J.C.I. in October 1980, and was appointed an Executive Director in February 1981 and Chairman and Managing Director of its Gold and Uranium Division in January 1982. He is Chairman of the Randfontein Estates Gold Mining Company, Witwatersrand, Limited, Western Areas Gold Mining Company Limited, and Elsburg Gold Mining Company Limited, and a director of a number of other companies.

In March 1981 Mr Nisbet was appointed to the Council of the Chamber and the Executive Committee. He has been a member of the Gold Producers' Committee since January 1978 and is a member of the Board of the Nuclear Fuels Corporation. He was Chairman of the Gold Mine Museum's Operating Committee from its inception until February 1982, and played a major part in the formation of the Museum.

Mr Nisbet is a Fellow of the Institution of Mining and Metallurgy, and of the South African Institute of Mining and Metallurgy. In August 1981, he was elected President of the South African Institute. Mr Nisbet represents the Chamber on the U.K. Mineral Industry Manpower and Careers Unit.

Mr G. Y. Nisbet

Mintek reports

The following are available free of charge from the Council for Mineral Technology, Private Bag X3015, Randburg 2125, South Africa.

Report 2010D

A process for the recovery of rare-earth oxides from monazite. (First published 16th March, 1979).

A simple process has been demonstrated in the laboratory for the production of mixed rare-earth oxides from monazite concentrate. The product is substantially free from radioactive materials and has a purity of more than 98 per cent.

The process involves leaching, filtration, ion exchange by use of a cation resin, precipitation, and calcination.

The design, materials, consumption and cost of chemicals, and labour requirements are discussed, and a recommendation is made for pilot-plant tests.

Report 2073D

A preliminary investigation of the concentration process at Ucar Minerals Corporation. (First published 19th September, 1980).

Vanadium was found only in magnetite, and the proportion of altered magnetite was the same in the concentrate as in the tailing. The final concentrate can be upgraded by the removal of the underflow from the open-cone cyclone and by gravity separation. Extra vanadium can be recovered by gravity separation or by magnetic separation, but a regrinding stage will probably be required.

Report 2092D

The recovery of pyrite from gold ore by gravity separation. (First published 28th November, 1980).

Pilot-plant tests on a sample of ore from a gold mine in the Orange Free State indicated that gold extractions can be increased from 87,4 to 94 per cent. This is below the extraction of 96 per cent that can be obtained by flotation, but gravity separation has the advantage of being far less costly. It is therefore considered worth while for further gravity-separation tests to be carried out on this refractory ore.

Report M13

Factors affecting the production of fines during the screening and handling of high-carbon ferromanganese.

This investigation was undertaken in an attempt to determine the factors responsible for the high proportion of fines obtained in normal plant operation, and to develop procedures to minimize the production of fines.

Part I describes the testwork that showed rapid cooling of the alloy and marked temperature gradients within the cooling slab of cast alloy to be the prime causes of the problem. Cooling of the top of the slab by water sprays seriously aggravated the problem. In addition, it was clearly demonstrated that, when 'layer casting' was practised, the rapid reheating of the lower layer (which occurred when the molten alloy was poured onto it) resulted in serious shattering, giving a high proportion of fines.

The measurement of the rates of cooling was difficult, but some apparently acceptable results were obtained. These indicated that, in thin slabs, high rates of cooling could be tolerated without serious problems, but that large differences in the cooling rates at the top, middle, and bottom of thicker slabs seriously aggravated the problems with fines. Continued attempts were made to develop methods that would allow the thermocouples to be protected from direct attack by the molten alloy and enable continuous records of the cooling rates to be obtained for periods of up to several hours.

Quantities of 10 t of alloy from the test casts were accumulated and fed through the screening plant in the hope that the results would be strictly comparable with those obtained in normal plant production.

Part II includes an account of work done on a type of mould that had been proposed for use in a continuous casting machine, the installation of which was being carefully considered by the sponsors. Because of the constraints that would be imposed by the design and operation of the machine in relation to the time available for the casting and cooling of the alloy, it was realized that the geometry of the pig type of mould would be completely unsuitable and would result in the production of a high proportion of fines.

A procedure in which large, flat cast-iron moulds were used with a layer of insulating material spread on the base yielded alloy of very satisfactory size fractions. However, on a plant, this procedure would be fairly labour-intensive.

The use of a layer of insulating material, such as ferro-alloy fines or crushed furnace slag, was found to be very useful in all the moulds in which it could be employed, provided that the slabs were allowed to cool in air.

By use of a specially developed tubular framework into which the thermocouples were fitted, it was found possible for a record to be provided of the rates of cooling at the top, middle, and bottom of a cast slab of alloy that had been lifted out of the mould after solidifying and being allowed to cool while being suspended in air. It is of interest that, when an insulating layer of material was placed on top of the slab before cooling of the slab in air, reheating occurred at the top and at the bottom of the slab. This, it is believed, should ensure a slower and more uniform rate of cooling throughout the thickness of the slab with a reduction in the quantity of fines produced. However, it is unlikely that this procedure will be practicable in plant operation.