

# SPOTLIGHT

## On Recent Mining and Metallurgical Developments in the Eastern Transvaal

by W.C. MATHER\*

The Witbank/Middelburg Branch of The South African Institute of Mining and Metallurgy hosted a colloquium entitled 'Recent Mining and Metallurgical Developments in the Eastern Transvaal', at the Witbank Civic Centre on Wednesday, 25th September, 1985. An attendance of close on 300 delegates bore testimony to the popularity of the theme.

Two well-attended cocktail parties were held at different venues on the evening prior to the Colloquium. These were hosted at the South African Coal Estates Recreation Club and Middelburg Country Club.

### Opening

Following the welcoming address by local Chairman, Mr W.C. Mather, the Colloquium was formally opened by the President of the Institute, Mr H.E. James.

After a brief look at the Institute's ninety years of existence, he outlined the manner in which the branches could act in promoting the offices of the Institute. He emphasized the necessity of promoting closer ties with other societies and associations such as The Association of Mine Managers, The Association of Mine Resident Engineers, and The South African Colliery Managers' Association, and the part the branches could play in furthering this objective.

### Keynote Address

The keynote address was delivered by Mr G.C. Thompson, Managing Director of Trans Natal Coal Corporation, Gencor.

He compared the predictions made at the 1979 Witbank Colloquium by the then President, Mr Dave Viljoen, with today's achievements. These had more than met expectations, with coal exports increasing from 15 Mt valued at 313 million rands in 1978 to 44 Mt exceeding 2500 million rands in 1985. The total coal sales had then been projected as 310 Mt/a by the year 2000, and are now expected to be in the region of 330 Mt/a.

He drew attention to the significant achievements in the metallurgical field, the production of ferrochromium having increased from some 370 kt in 1978 to 840 kt in 1984.

He emphasized the growth in opencast mines and that an average of 2 draglines had been introduced each year over the past decade, with the total now standing at some 22. He touched on the recent developments of rib-pillar mining in South Africa, and the improved percentage extraction achieved by both these forms of mining.

He pointed out that South Africa is at present the fifth-largest coal-producing country in the world, and the largest exporter of steam coal. In addition South Africa



At the cocktail party held at South African Coal Estates Recreation Club. L to R: Mr Jack Ferguson (EIMCO), Mr Tom Schmoll (Highveld Steel & Vanadium), and Mr Derek Moore (Joy Manufacturing)

\* Chairman, Witbank/Middelburg Branch of The South African Institute of Mining and Metallurgy.

At the cocktail party held at Middelburg Country Club. L to R: Mrs Bagnall, Mrs Anders, Mr Trevor Anders, and Mr Tony Bagnall



is the world's foremost supplier of coal-based synthetic fuels and is shortly to become the world's largest generator of electricity from coal.

He predicted that no momentous new developments in the mining field would take place, but that there would be an ongoing development and a refinement of existing techniques.

#### First Session

In the first session, chaired by Mr J. Hall of Highveld Steel & Vanadium, the first paper was presented by Messrs J.W. Oberholzer and D.R. Hardman of the Coal Mining Laboratory of the Chamber of Mines Research Organization. They reviewed the performance and use of the 110 continuous miners in South African collieries and highlighted the fact that, on average, continuous miners produced 76 t per operating hour or, at 67 per cent availability, 51 t per total hour.

They were followed by Dr N.A. Barcza of the Pyrometallurgy Division of Mintek, who gave a very detailed and profound presentation on the development of large-scale thermal plasma systems and their potential for cost savings when compared with the more conventional methods used in the generation of thermal energy.

The last presentation before the morning break was by Messrs C.J. Cloete and J.T. Collins of Secunda Collieries. They outlined the operational developments during the establishment of Secunda Collieries, which had led to the successful founding of a coal-mining giant that was already producing 29 Mt/a.

#### Second Sessions

There were two parallel second sessions.

One of these sessions was chaired by Professor A.N. Brown of Pretoria University and the first presentation, by Mr B.G. Russell of the Minerals Bureau, dealt with South Africa's position in the world minerals scene. He gave a detailed account of South Africa's mineral resources and placed her geological wealth in perspective in the global context.

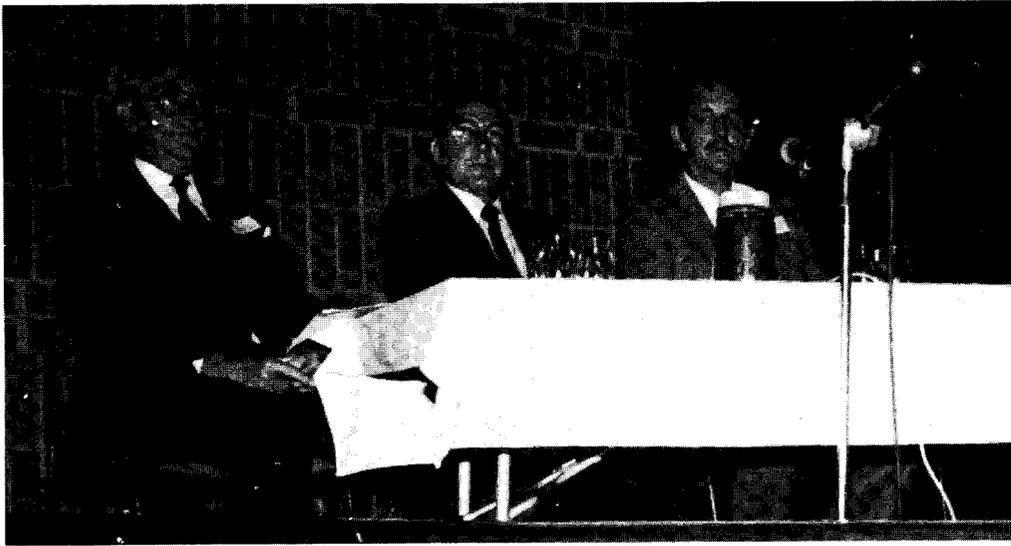
He was followed by Messrs R.A. Watts and W.J.H. Steyn of Kleinkopje Colliery, South African Coal Estates Division, who outlined a unique method developed at Kleinkopje that utilized a dragline to remove interseam parting. This paper was followed by a presentation on the performance testing of permitted explosives by Dr C.M. Louwds and Mr B.W. Wallace of African Explosives & Chemicals Limited.

The final paper in this session, presented by Dr H. Wagner and Mr E.H.R. Schumann of the Chamber of Mines Research Organization, gave a very detailed and comprehensive account of the effects of total seam extraction on the surface and on surface structures.

The other second session was chaired by Dr P.R. Jochens of Mintek. The first paper was presented by Dr B. Rohrmann of Highveld Steel & Vanadium and outlined some of the applications of coal and anthracite at



Mr Bill Mather welcoming the delegates to the Colloquium



At the first session of the Colloquium. L to R: Mr John Hall (Highveld Steel & Vanadium), Mr G.C. Thompson (Gen-cor), and Mr Henry James (Mintek and President, SAIMM)



At the banquet. L to R: Mrs Knobbs, Mr Badenhorst (Government Mining Engineer), Mrs Mather, and Mr Clive Knobbs (President, Chamber of Mines of South Africa)



Visit to Highveld Steel & Vanadium

the Iron and Steel Works of Highveld Steel & Vanadium Corporation Limited. This paper was followed by a presentation by Messrs D.W. Horsfall, G.J. de Korte, and Z. Zitron on plant experiences in the froth flotation of Witbank coals.

The next paper, by Mr W.F. Meihack of Mintek, emphasized the importance of the fluidized-bed reactor as an alternative means of processing fine materials.

The final paper in this session was presented by Dr R.M.S. Falcon of Falcon Research Laboratory, who gave an interesting and enlightening account of the work being done in the field of spontaneous combustion.

### **Third Session**

There were two parallel third sessions.

One session was chaired by Mr J.D. Austin of Anglovaal Limited, and the first paper, on the petrographic composition of South African coals in relation to their friability, hardness, and abrasive indices, was presented by Dr R.M.S. Falcon of Falcon Research Laboratory. Then followed a paper by Mr S.I. du Preez of Douglas Colliery, who outlined the encouraging test results being obtained at Van Dyksdrif and Middelburg Mine Services in the beneficiation of fine coal by spiral concentration.

The next presentation, by Mr J.R. Kerr, a Computer Consultant, dealt with asset information and management support systems. The final paper gave a report on pilot-plant results in the beneficiation of fine coal by spiral concentration, and was presented by Mr J.R. Woodman of Kleinkopje Colliery.

The other parallel third session was chaired by Dr P.T. Wedepohl of Mintek, and the first paper presented was by Mrs A.M.F. Carter of Mintek on the effects of erosion, corrosion, and abrasion on material-handling systems, which analysed the results of a survey conducted over 41 mines. This was followed by a paper by Mr J.P. Hoffman of Middelburg Steel & Alloys on new corrosion-

resistant and stainless steel in South Africa.

The final paper of this session was presented by Professor G. Pienaar of the University of Pretoria, and dealt with the effect of vanadium on molybdenum-bearing heavily-tempered low-alloy steels.

### **Banquet**

The Branch hosted a well-attended and most successful banquet in the evening at the magnificent banquet hall in Witbank's new Cultural Centre. Dignitaries present included the President of the Chamber of Mines, Mr Clive Knobbs, the Government Mining Engineer, Mr G.A. Badenhorst, the Mayor of Witbank, Mr Paul Broodryk, and the President of The South African Institute of Mining and Metallurgy, Mr Henry James.

### **Technical Visits**

A ladies' programme was arranged for Wednesday, 25th September, which included a trip to Loskop Dam and the Cheetah Farm.

On Thursday, 26th September, interested delegates were taken on technical visits to Highveld Steel & Vanadium, Tavistock Colliery, Kleinkopje Colliery, Greenside Colliery, Duvha Colliery and Power Station, and Middelburg Steel & Alloys. However, these trips were not as well patronized as had been hoped.

### **Conclusion**

The papers were all of a very high standard, the technical contents and the expertise of the authors presenting the papers being, in many instances, outstanding.

The Witbank/Middelburg Branch records its thanks to all those persons who contributed to the success of the Colloquium, particularly to the Council's Technical Programme Committees, the Secretaries of the Institute, and the committee and branch members of the Witbank/Middelburg Branch.