

SPOTLIGHT

on the mechanization of mining operations

by J.J. GELDENHUYS*

A colloquium on 'Developments in the Mechanization of Mining Operations' was held in, conjunction with the 1984 Electra Mining Exhibition, at the Milpark Holiday Inn in Johannesburg on 19th September, 1984.



Mr J.J. Geldenhuys, Chairman of the Organizing Committee, giving the welcoming address.

An attendance of close on 200 delegates was testimony to the popularity of the subject. The delegates included a number of visitors from abroad, including senior members of the management of foreign companies and a member of the Council of the Institution of Mining and Metallurgy, United Kingdom. Both the local and foreign press was also represented.

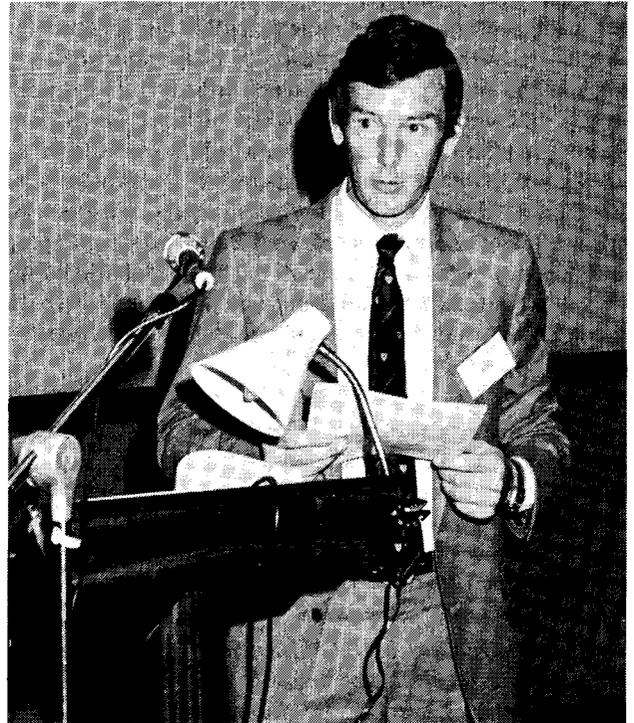
Opening

The Colloquium was formally opened by the President of The South African Institute of Mining and Metallurgy, Mr John Austin of Anglovaal. He outlined the motives underlying the topic of the Colloquium and gave delegates a brief overview of the presentations to follow.

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SA ISSN 0038-223 x \$3.00 0.00.

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Mr J.D. Austin, President of SAIMM, presenting the opening address.



Mr Dave Rankin, Managing Director of the Anglo American Coal Division, presenting his paper.

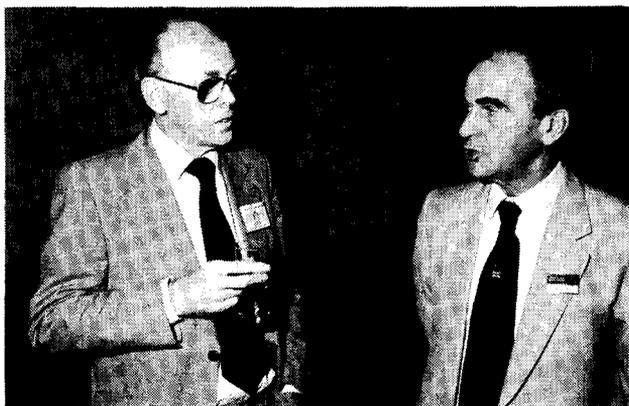
Coal Mining

The first session centred on coal mining and was chaired by Mr Dave Rankin, the Managing Director of the Anglo American Corporation Coal Division, and Chairman of the Collieries Committee of the Chamber of Mines.

The first paper of the day was presented by Mr A. Smith and dealt with the topic of mechanized stoping at DNC. Mr Smith demonstrated how the extraction at that colliery had increased from approximately 70 per cent to approximately 85 per cent with improved safety by the mechanization of pillar extraction. Previously, pillars had been created at a much faster rate than they could be extracted by hand-loading methods, a problem that has now been solved by mechanization. Fortunately, Mr Smith accepted in excellent spirit an unplanned interruption to his presentation by an announcement and some foot-tapping music via the hotel's public-address system, which had been inadvertently switched through to the conference room.

British long-walling experience world-wide was the next topic. The mining aspects were discussed by Mr John Haskayne of Gullick FSW International, and covered mainly support considerations and equipment, with some attention to coal clearing on the face. The engineering-design considerations were elucidated by Mr Dave Chandler of Dowty (UK).

The next paper, presented by Dr. P. Carr of Steffen,



Left to right: Mr B.C. Alberts of Iscor and Mr J. Haskayne of Gullick FSW International (UK).



Left to right: Mr A. McCracken and Dr P. Carr of Steffen, Robertson & Kirsten.

Robertson & Kirsten, dealt with a conceptual analysis of the applicability of mechanized extraction methods to thick coal seams, and comprehensively reviewed the relevant methods and design considerations.

Mr G. Lyndon of Secunda Collieries then described how bunker cars were being utilized to optimize continuous-miner production by minimizing the waiting time of the continuous miners and reducing the ineffective time associated with shuttle-car change-outs. Mr T.J. King explained the design details of the bunker car.

From remarks passed by the gold miners, who were obviously fascinated by the coal session, it was clear that most of them had considerably expanded their vocabularies during the morning. They had learnt, among other things, that 'stooping' is not what one does in a full slusher gully, that goafing does not mean losing a blast, and that one can indeed find snook underground in a coal mine.

Gold Mining

Mr Lynne van den Bosch, past President of the Chamber of Mines and retired Executive Director of Union Corporation, chaired the next session, which dealt with gold-mining developments.

Mr J.A. Cox of Anglo American Corporation, in his paper on trackless mining in gold mines, reminded the gold miners that the gold-mining industry in South Africa is the last in the world to utilize trackless mining on any meaningful scale. He warned that the gold price was unlikely forever to come to the industry's rescue, and that labour costs were likely to beat the industry in the long run, which suggested mechanization as a solution. In his presentation, he gave some sound advice on how to set about the introduction of trackless equipment to gold mines in South Africa.

The second paper in the gold session dealt with recent developments on blindhole boring at Vaal Reefs South. The author, Mr G.B. Lundstrom of Anglo American, described in some detail the types of machines in use, together with the *modus operandi* and structure of the organization relating to the use of these machines. He elaborated on the performance of the machines over the past few years, and gave useful information on the costs involved.

Sundry Developments

The final session of the Colloquium, dealing with sundry developments in mechanization, was chaired by Mr Mauritz Oberholzer of Gencor.

Messrs C.H. Page, of Steffen, Robertson & Kirsten, and J. van Zetten, of Shell SA, in their presentation described how a hoisting system for a relatively shallow base-metal mine was selected from various alternatives, including truck haulage, skip hoisting, conveyor hoisting, and combinations of these alternatives.

Mr K. Owen of CDM described the introduction of a moving-belt loader to remove overburden at the mine. He illustrated how overburden, under certain conditions, can be removed more economically by a moving-belt loader than by conventional bowl scrapers. Cross-pit conveying is



Left to right: Messrs M.R. Oberholzer, L. van den Bosch, J.D. Austin, and J.J. Geldenhuys.



Left to right: Mr I. Bell of AECl and Mr G. Pearce of Mining Journal Books (UK).



Left to right: Mr Eastwood and Mr H.L. Rhodes (both from the UK).

currently being investigated to supplement moving-belt loading and so provide even better cost efficiency.

The last paper of the day dealt with the development of a prototype continuous-mining system utilizing explosives for narrow tabular orebodies, presented by Mr I. Bell of AECl.

General

The papers were all of high standard and were well received, and some of the presentations of the papers were

outstanding. Any criticism that can be raised is that insufficient time was allowed for questions, a shortcoming that detracted from the full value of the Colloquium.

The morning's proceedings concluded with a luncheon for authors and organizers, which was enjoyed by all. The Council records its thanks to the Secretaries, particularly Mrs Judith Money, for the solid effort put into the organization of this Colloquium, as well as to Mr Dennis Drysdale for his much-valued technical assistance.