

SPOTLIGHT

on the selection of mining systems and methods

by D. R. LAWRENCE*

A one-day colloquium on the 'Selection of mining systems and methods' was held at Mintek, Randburg, on 21st September, 1983. The overall theme of the colloquium concerned the underlying reasons for the selection of a particular method or system of mining. The response was very encouraging, with a total of 262 delegates in attendance.

Mr B. C. Alberts welcomed everyone to the colloquium and introduced the programme for the day. The opening address was made by Professor R. P. King, the President of the Institute, who stressed the importance of the colloquium's theme.

Because the papers to be presented covered such a wide spectrum of mining activities, the programme took the form of four sessions, each session representing a particular aspect of the South African mining industry.

First Session

The first session comprised three papers connected with gold mining, with the titles of 'Trackless development at Vaal Reefs South', 'The optimization of raise spacing (scattered mining)', and 'The interaction between environmental factors and mining methods in the selection of mining systems'. The first paper, by G. B. Lundstrom, included a description of the trackless equipment in use and the *modus operandi*, with some comment on the reasons for its selection. The second paper, by D. R. Lawrence, described a method for the calculation of the economic optimum spacing of raise connections, and included a discussion of a case study. The third paper, by D. F. H. Grave and Dr A. M. Patterson, discussed the need for environmental factors to be considered in detail during the planning of a mining system or method to be used in a given mining proposition.

Second Session

The second session consisted of three papers connected with metalliferous (other than gold) mining. The titles were 'Introduction of sublevel caving at Prieska Copper Mines (Pty) Ltd', 'Die optimisering van die Sishen Groefvervoersisteen', and 'Cut-and-fill mining at Black Mountain Mineral Development Company (Pty) Ltd'. The first paper of this session, by R. W. O. Kersten, compared technical and economic aspects of sublevel open stoping with those of sublevel caving. The second paper, by J. v.d. M. Grimes, concentrated on a description of the computerized truck-allocation system operated at Sishen Iron Ore Mine. The third paper, by P. J. Kinver, gave a summary of investigations into the cut-and-fill mining method (including modelling, labora-

tory testing, and *in situ* testing) and the methods used at the Broken Hill orebody.

Third Session

The third session consisted of two papers that examined certain aspects of South African coal mining: 'Partial pillar extraction with controlled goafing of the superencumbent strata', by J. D. Flint, J. D. N. Strachan, C. A. Clarkson, and I. F. Buchan, and 'Method of selective mining at Van Dyks Drift Colliery for the mining of low ash blend coking coal', by R. B. MacGillivray. The first paper described a method of mining adopted at Vierfontein Colliery to improve the recovery of coal from old workings. The second paper gave a description of a unique system of selective mining that was developed to satisfy specific market trends.

Fourth Session

The final session, which covered coal analysis and market trends, consisted of two papers, the titles being 'The effect of consumer specifications on the planning and operation of a coal mine' and 'An example of the relevance of coal seam, petrological, and maceral analysis in mine design, beneficiation, objectives, and washed-product utilization'. The first paper, by N. T. Halgreen, dealt with the effects of consumer specifications for properties such as calorific values, ash content, moisture content, and size distribution on coal-mine operations. The second paper, by P. King, illustrated, by means of a case study, how details of the maceral composition and rank of a coal seam can be used as an integral part of the development and planning process in a coal mine.

General

The Chairmen for the four sessions were Mr B. C. Alberts (Isacor), Mr J. J. Geldenhuys (Anglo Vaal), Mr R. H. English (J. C. I.), and Mr A. Howell (Transvaal Coal Owners Association). Mr R. L. de G. Solms (W.D.L.) was to have acted as Chairman of the first session but, owing to unforeseen difficulties, could not attend the colloquium.

The closing remarks were made by Mr B. H. Leach (Sasol), and were followed by a cocktail party.

The colloquium was indeed a great success. The papers covered a wide range of aspects of the South African mining industry and were excellently prepared. The response by the delegates to the papers during the various question times was very good and enlivened the day's proceedings.

Acknowledgements are made to all who contributed to the success of the colloquium, especially Mrs J. A. Money, who organized the event, and Messrs Exdin Limited, who sponsored the cocktail party.

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