

# SPOTLIGHT

## on Underground Mining Methods and Technology

by L. WADE\*

The University of Nottingham, in conjunction with the University of Kentucky and The Society of Mining Engineers of America, hosted the International Symposium on Underground Mining Methods and Technology from 8th to 10th September, 1986. The programme was based on the central theme 'Coal Mining under Adverse Conditions'.

The Symposium was truly international, attracting participants from 9 countries. As befits a country with such a long and proud mining heritage, South Africa sent a contingent that was one of the strongest, being collectively responsible for 6 out of the total of 39 papers presented.

### Day 1—Ventilation

The Symposium opened with a welcoming address by Professor Tom Atkinson, the Head of Mining Engineering at The University of Nottingham. Professor Atkinson briefly outlined the range of technical difficulties currently attracting the greatest amount of attention worldwide. These problems included such diverse topics as methane drainage, fire prevention and control, hard-rock tunnelling, electronic controls, caving under massive sandstones, improved roof support, and the use of the latest computer techniques, all of which were the subject of papers at the Symposium.

Once the scene had been set, the remainder of the first day was devoted to ventilation and environmental aspects. In keeping with the Symposium theme, the papers generally tended to be very practical in nature. However, it was rather ironic that, preceding the Kinross disaster by only a matter of days, two papers in this section from South Africa were entitled 'Recommended ventilation techniques to be used in coal mines which are subjected to the adverse conditions of mine fires' and 'The introduction of self-rescuers in the South African mining industry'.

### Day 2—Mining Equipment

The second day's programme was heavily oriented towards recent developments in mining equipment,

ranging from shearer design and electronic controls, through coal cuttability and the potential for high-pressure water assistance, to the development of heavy-duty conveyors.

One of the most exciting papers of this session, indeed of the whole Symposium, unveiled the Robins Mobile Miner. This machine, which has been undergoing trials in Australia, has proved itself capable of cutting 0.5 m/h of heading 22 m<sup>2</sup> in cross-section through very hard and abrasive quartzites. The downtime of the prototype has been very high, but should improve with the design modification currently being undertaken. Robins predict that this machine will shortly emerge as a real economic challenge to drilling and blasting in hard-rock development. A significant feature of this machine is its ability to create tunnels of rectangular profile, rather than the somewhat unpractical circular tunnels produced by traditional tunnel borers. Developments with this machine are sure to be of great interest to the South African gold-mining industry.

### Day 3—Rock Mechanics and Computing

One of the several aspects of rock mechanics referred to was longwall coal mining under massive sandstones. Papers on this theme were presented by both Indian and British authors. This subject is of great interest to South Africa because of the similarity of behaviour between superincumbent massive sandstones and the dolerite sills commonly encountered in this country.

As with most conferences these days, a session was devoted to computer applications, with the American contingent not surprisingly showing the lead. However, the papers in this session were rather disappointing and somewhat out of keeping with the practical mining nature of the other sessions.

### Symposium Dinner

The Symposium concluded with a traditional sherry reception and a formal dinner for delegates and accompanying wives.

### Post-Symposium Visits

For those delegates able to spend an extra 2 days in Nottingham, post-symposium tours were organized to Dowty Mining Equipment Ltd and two local collieries.

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